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THREE SUMMERS AMONG THE BIRDS OF RUSSIAN LAPLAND

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GREAT BLACK-BACKED GULL'S NEST.

PAGE 4.

THREE SUMMERS AMONG THE BIRDS OF RUSSIAN LAPLAND

BY

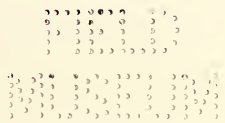
HENRY J. PEARSON

AUTHOR OF "BEYOND PETSORA EASTWARD"

WITH HISTORY OF

SAINT TRIPHON'S MONASTERY

AND APPENDICES



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PREFACE

THAT the Bird Life of Russian Lapland should be very slightly known to Englishmen is, no doubt, partly due to the difficulties of travel there, and also to the fact that the fishing and shooting are not good enough to tempt our countrymen to penetrate its wildernesses. Sportsmen have often been valuable pioneers in ornithological work. Until lately the only sources of information available in English respecting even the country itself were Edward Rae's books, "The Land of the North Wind," and "The White Sea Peninsula," in which accounts are given of his journeys in 1873 and 1879. In the former year he sailed in a Russian boat up the west coast of the Kanin peninsula, and journeyed through some of the interior of that district; while in the latter year the most important part of his travels was from Kandalax to Kola by the series of lakes which form a natural highway for much of the distance. These books show Rae to have been gifted with many of the qualities most necessary in a traveller; and, as I afterwards found to my cost, he certainly selected the only feasible means of reaching the coast of the Kanin peninsula. The list of birds given in his second book is, however, open to question; at all events, some of the species, if correctly identified, had wandered very far from their usual habitats. Lieutenant George T. Temple, R.N., contributed a short account of Russian Lapland to the Proceedings of the Royal Geographical Society for October 1880, accompanied by a map, which he had drawn from the original one made by Professor J. A. Friis, and this map was reprinted by Rae in his "White Sea Peninsula." As it is still the best existing of the country, I have inserted it in the present volume, with some slight alterations.

An interval of twenty years elapsed before any material addition was made to our knowledge of the country. In 1899 Alexander Platonovich Engelhardt—then Governor of the Province of Archangel—published "A Russian Province of the North," a book which will long remain the standard authority on these northern parts of Russia. He gives a most graphic description of his travels through Russian Lapland, the Petchora district, and Novaya Zemlya, combined with a series of statistics of population, natural products, game, &c., which probably only a Governor could supply.

In the same year, Mr. Harry F. Witherby, a member of the British Ornithologists' Union, followed in Rae's footsteps from Kandalax to Kola; the work he did there will be more fully referred to in the third chapter. I take this opportunity of acknowledging the material assistance he has kindly rendered me in preparing the list of birds. Mr. Witherby has sent me a list of the birds of Russian Lapland, prepared by M. H. Goebel, and published in Russian and German by the Imperial Society of Natural History of St. Petersburgh, TXXXIII. fase. 2, 1902. This list appears to combine the records of Pleske and others with those of the writer. M. Goebel has divided the country into eighteen districts, for the purpose of showing the distribution of the various species, and has added the islands of Solovetski as a nineteenth. The seven species only recorded from these islands are excluded in my Appendix. He gives 191 species for Russian Lapland, but as several of these are synonyms according to English classification, and others given only on the authority of natives, the list is reduced to 182. He divides his list as follows:—

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It is much to be regretted that this gentleman has not given further details respecting his authorities for including some of the species and their breeding in the country. I must confess personal responsibility for one species open to objection, viz., *Parus camtschatkensis*, inserted in the article contributed to *The Ibis*, October 1899, with the hurried assistance of one of our best English ornithologists, on the authority of a skin terribly mauled by shot; but a small committee subsequently "sat on" that skin and unanimously decided it to be *Parus borealis*. Another error connected with the birds of this country was the inclusion of the Green Sandpiper *Totanus ochropus* among the birds of Lutni, in *The Ibis*, p. 212, April 1896, which should have been entered as the Wood-Sandpiper *T. glareola*. Unfortunately this mistake has already been copied in two standard ornithological works on the continent. I am also far less satisfied in 1904 with the evidence on behalf of the Great Snipe *Gallinago major*, recorded on the same page, than I was in 1895. The eggs are decidedly large for the Common Snipe, but they are equally small for the Great Snipe; the bird was only seen by two of us, and not shot. The nesting of *Tringa subarquata* (*Pelidna subarquata*, Güld) on the western Murman coast is certainly a case where information is desirable, beyond the * (indicating breeding) inserted in the list. All the information we have at present shows that the breeding range of this species is to the east of the river Yenesei, and any record in Europe ought to be most carefully verified before it is admitted. English ornithologists would be glad to receive further details respecting the breeding haunts of *Stercorarius pomatorhinus* on the west Murman coast, although I have little doubt the bird nests there in favourable seasons. Rae gives *S. catarrhactes* in his list of birds for Russian Lapland, and M. Goebel also includes it, but possibly both have mistaken a melanic specimen of *S. pomatorhinus* for this species. Still M. Goebel's is a valuable list, adding to our knowledge of the birds of this country.

My first visit to Russian Lapland was made in 1895 to the district round the Ukanskoe river, and an account of its results was published in "Beyond Petsora Eastward"—a title taken from Milton's "Paradise Lost." When my late friend Philip Crowley's books were sold this was entered as "Beyond Pretoria Eastward." In 1899 I spent six weeks in the northern parts of Russian Lapland; the country round the Ukanskoe river was revisited, and a short trip made to the Kanin peninsula on the east side of the White Sea in the summer of 1901; and in 1903 I went to the interior of the country south of the town of Kola. The following chapters contain the results of these three years' work among the birds of the above-named districts; and though they record no new species or facts of importance, they will, I trust, prove of sufficient interest to brother-ornithologists to justify their publication.

By referring to the map, it will be seen my personal knowledge of the large area of Russian Lapland is very limited. The general impression produced on my mind by those parts visited was that the country had very little economic value in the present, or capacity for development in the future. The sea-fishery is inferior to that on the adjoining coast of Norway, and is also more uncertain. For instance, the fish were plentiful for several years off Zip-Navolok, and gave employment to a thousand men; a church, hospital, &c., were built, and then the fish went elsewhere. At the time of my visit in 1899 the windows of the church and hospital were boarded up, and only two or three houses occupied. I have never seen a fishing town in the north of Norway in this deserted state. Yet the sea-fishery is far the most valuable asset the country possesses, for the greater part of the land is practically worthless and incapable of supporting more than its present scanty population. Its productive power is best gauged by the fact that almost all the inhabitants desert it during the summer months, and only return when it is covered with two or three feet of snow. The scarcity of population in summer was illustrated on our tour in 1903 extending

over six weeks, when we never met a man or woman away from the stations, although we were out ten to twelve hours every day. Of course it must be understood I do not include in this statement the area within a mile of the town of Kola. Generally speaking, the land produces nothing of value but reindeer-moss, and what little food man obtains consists chiefly of fish from the lakes and rivers, supplemented by the surplus stock of his reindeer. The most notable exception is the Pechenga district, where fairly good grass meadows exist round the fjord, and support a number of cattle. The valley beyond the fjord is favoured with better soil and climate; and large trees were plentiful, as the stumps testified, before the monks cut down so many for building the monastery. A little grass also grows about the town of Kola, providing food for about a dozen cows and a few horses; but after leaving Kola we did not see an acre of grass in the whole sixty-nine versts to Pulozero.

All the land in the valley through which the Kola river flows appears to be poor sandy detritus with occasional patches of glacial clay, both almost entirely devoid of humus. This poverty of the soil explains not only the absence of grass but also the poorness of the trees, for although the whole valleys and lower hills are covered with birch, pine, and spruce, very little of the wood can be called timber, and trees large enough to cut into seven-inch planks are often a mile apart. In fact, the country deteriorates rapidly as one proceeds from the north-west towards the east and south-east; and more than half the peninsula produces nothing beyond birch-scrub and reindeer-moss. Consequently that part is deserted by Russians, and inhabited only by Lapps and other inferior races.

It seems clear, from my experience and that of Mr. Witherby, that the number of birds of many species breeding in this country varies greatly in different seasons; but the cause of this is not so apparent. The weather is certainly not always the reason; for instance, Mr. Witherby came across a number of Bar-tailed Godwits—sometimes two or three pairs in one marsh, while we only saw two pairs in the

whole of the same district; yet the weather both in spring and summer was finer in 1903 than in 1899, 1903 being nearly a normal one both in depth of snow and the time of its melting, while 1899 was distinguished by one of the heaviest snowfalls and latest seasons known for forty years. As far as ducks, geese, and swans are concerned, their numbers will probably continue to decrease in the future as they have done in the past. Most of the peasants have guns, and the quality of both guns and ammunition is improving rapidly. In 1903 I first saw the natives shoot birds on the wing. Every large bird that is eatable is shot throughout the breeding-season on all opportunities; still we must recollect most of these birds are only there to be shot during the summer, and form a part of the food supplies. Egg-collecting for dealers is still unknown in all the districts visited, I am glad to say.

THREE SUMMERS AMONG THE BIRDS OF RUSSIAN LAPLAND

CHAPTER I

1899

ONE great difficulty of travel in the North is that all arrangements for the voyage must be made months beforehand, when there is no possibility of learning what the summer, conditions of the ice, and other important items are likely to be. It is, therefore, almost entirely a matter of chance whether the explorer has a favourable season to reach the desired parts and to find birds there. In 1899 my brother, Mr. Charles Pearson, and I were very unfortunate; and it seemed that we had hit on the worst season experienced in the north of Norway for more than forty years. As we advanced towards Russian Lapland matters became worse rather than better.

On our arrival at Tromsö, May 19th, we found the main streets of the town buried under four feet of snow, compressed into one hard solid mass by the winter's traffic; while many of the small courtyards behind the houses were filled with snow to a depth of eight feet, a narrow passage having been excavated to give access to the back-doors. This did not promise well for the advent of summer-migrants or the nesting of birds at present. In fact, since we entered the Arctic Circle the whole coast-line had been covered under deep snow

down to the sea-level, and the country presented the appearance of mid-winter rather than the last fortnight in spring.

I had chartered the s.s. *Expres* for our voyage, a small steamer built of iron, and therefore quite unfit to encounter ice; her accommodation also was limited, and a voyage on her for some weeks might be distinctly described as "roughing it," compared with the comforts of an ordinary English yacht, or even the s.s. *Laura*, in which we had made our voyage of 1897. Still the *Expres* could carry a good supply of coal, and she had made several voyages of exploration round the Spitsbergen coasts, notably Sir Martin Conway's expedition in 1896. The *Expres* came into the harbour three hours after our arrival, and the remainder of the day was fully occupied with unpacking stores, &c.

May 21st.—The weather had been so stormy during the whole of the preceding day, our departure was delayed till this morning, when we started early for the outer belt of islands. The warmer air off the sea had melted much of the snow here, but great drifts still remained in all directions, and icicles three feet long adorned the sides of the gullies. The only birds which had commenced to lay were a few Grey Lag-Geese *Anser cinereus*, Great Black-backed Gulls *Larus marinus*, and Herring Gulls *Larus argentatus;* and the owner of the first island had sent less than a score of eggs to market. Even the Hooded Crows *Corvus cornix*, had not yet built here, although they had eggs on the next group of islands. At the same date in 1896 there were hundreds of Gulls' eggs in all directions, and gathering for sale was nearly over as far as the early species were concerned. Many small birds, which do not breed on the island, were feeding on the open spaces, waiting for the weather to improve and allow them to proceed to their usual haunts. Among them we identified five Twites *Linota flavirostris*, the first either of us had seen within the Arctic Circle, although Professor Collett states it is common on some parts of the coast and islands as far north as Tromsö.[1]

[1] "Remarks on the Ornithology of Northern Norway," p. 211.

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HERRING-GULL'S NEST. SNOW 4IN. DEEP.

PAGE 4.

May 22nd and 23rd we spent at Risö with our old friend Herr Jakobsen and his daughters. The name Risö is applied to a group of islands (all his property) ninety-nine in number, which carry some amount of herbage, besides various bare rocks. The amount of bird-life congregated here in the breeding season is enormous, and some idea of this may be formed from the fact that in a good year the owner sends from eight to nine thousand eggs, chiefly Gulls', to market. In 1896 we anchored for two or three days in a narrow passage between two of the islands. The birds soon became accustomed to the presence of the little steamer, and the picture presented by hundreds of Eider Duck *Somateria mollissima*, Gulls, &c., upon land and water, on a bright calm night, when the much over-praised "Midnight Sun" endeavoured to justify its reputation, was one not easily to be forgotten.

White-tailed Eagles *Haliaëtus albicilla* are not extinct here, I am glad to say, for we saw three or four this year, but they are seldom allowed to rear their young; and all the nests we visited were old ones, unoccupied for several years. On the island of North Fulgö (Bird Island) these Eagles can breed in peace, for the cliffs are so high and dangerous that none of the natives will descend them on a rope, though the Government offers a reward for both eggs and young. This island is the breeding resort of Puffins *Fratercula arctica*, in countless numbers, and when on steaming past it in 1896 I fired a gun several times to make them rise, the reports roused eight White-tailed Eagles from various parts of the cliffs.

Herr Jakobsen showed us a Starling still in the flesh, *Sturnus vulgaris*, he had recently shot, and which he said was the first seen on the islands. He had no idea what the bird was. On our arrival at Skaarö two days after, the cooper attached to the whaling establishment had two more Starlings, shot this year and stuffed. He also had not met with the birds here before, although he knew them well in the south of Norway where his home was. 1899 was probably the first year Starlings had extended their range so far north among the

outer islands. Professor Collett states they were very rare north of the Lofoten Islands in 1872, although they had been observed at Tromsö in both spring and autumn. Others tell me these birds are increasing in numbers, and have been pushing northward since Collett wrote.

Plate 1 shows a Great Black-backed Gull's nest at Risö containing one blue and one olive-brown egg.

Both days were beautifully bright and warm. On the afternoon of the 23rd a rainbow appeared in an almost cloudless sky, and lasted some time. At the same time a thin white circle of vapour, very high in the air, parallel with the horizon and half-way between it and the zenith, ran round three-quarters of the sky, its ends showing rainbow colours. The rainbow was below, and probably caused by it. The whole produced a remarkable effect, but boded no good weather, a prophecy abundantly fulfilled during the next three days.

The 24th was a day of continual snowstorms, spent in hunting vainly for Ravens' nests.

When I woke on the 25th the men were sweeping snow four inches deep off the decks. We had moved the previous evening to Skaarö, and were sorry to learn Herr Giæver and his wife had not arrived yet. What a contrast to our last visit in 1897! when the land was covered with grass and flowers; now only snow and water met the eye. There was little trouble in finding the few Gulls' eggs on the island opposite, as will be seen from Plate 2. The birds had sat on them through the snowstorm of the previous night, and the nests stood out as black patches on the hillsides. Several Grey Lag-Geese had nests, one with six eggs, and I was surprised to find a Pintail Duck *Dafila acuta*, already the possessor of nine eggs, regardless of the inclement season. Plate 4 represents the nest placed under a mass of dwarf birch, much contorted in its youth by the weight of winter snows.

After lunch the cooper joined us in a long weary tramp round the island of Skaarö, Ravens' eggs being the forlorn hope. A six-

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GREY LAG-GOOSE'S NEST.

hours' walk through a quick succession of snowstorms, over ground covered with snow, in which one constantly sank to the waist, may well be called dreary. All we had for our walk was a sight of two White-tailed Eagles at close quarters, and of a nest of young Ravens *Corvus corax.*

We spent some hours at Hammerfest the next day, and then steamed on to the Porsanger fjord, where we arrived early on the 27th. The island of Stor Tamsö was in a more backward state than any place we had visited this year, being almost entirely covered with great snow-drifts; and the proprietor, Herr Ullick, said that only the Great Black-backed Gulls had commenced to lay. Yet several pairs of White Wagtails *Motacilla alba,* had arrived and were searching for food round the house. We saw these birds at all the places we landed; they are among the earliest to go north, and their arrival seems to be little affected by the weather.

Herr Ullick thought we should find less snow towards the head of the fjord, so we moved up there, and landed to seek a pilot who could show us an anchorage; but not one of those we met spoke Norwegian, and some dialect of the Finns seemed to be their only language. One young woman, who was rather nervous at the presence of so many strangers, relieved her feelings by pushing the end of her nose in all directions as she endeavoured to talk; sometimes it was on one cheek, sometimes on the other, then where the bridge should have been. Nothing but the most flexible indiarubber would give an adequate idea of that nose. It must not be imagined, however, I describe this lady as a type of female beauty there!

May 28th brought beautiful weather and really hot sunshine, which we hoped would soon begin to affect the snow. Large numbers of birds were on the sea, chiefly Long-tailed Ducks *Harelda glacialis.* We saw to-day Scoters, Skuas, Arctic Terns *Sterna macrura,* Redshank *Totanus calidris,* Willow Grouse *Lagopus albus,* and Fieldfares *Turdus pilaris,* &c. The only nest was a Great Black-backed Gull's, with five eggs. I think the explanation of this most unusual number

is that the bird laid two, and was then disturbed by a return of sharp frost; after the frost passed away she commenced to lay again, knowing the first were useless. The shells of two were cracked in all directions; all five were slightly incubated. When these eggs were exhibited at the B. O. Club, it was suggested two birds had laid in one nest, but the character of this species is not of that amiable disposition which would lend itself to such an arrangement.

In the evening a Finn came on board who could speak Norsk. He told us it had been the most severe winter he could remember in twenty-four years, and that the lakes up the river were still so frozen that horses and sledges crossed safely. Consequently he felt sure no Geese or Ducks had laid there yet.

May 29th.—We left our anchorage at 6 a.m. for Vardö. A stiff S.E. breeze made the *Expres* so lively it was impossible to cook all day, so we turned into the Tana fjord and dropped anchor at 8 p.m. in Finkongkjeilen inlet, where we were able to get some dinner in peace. This is quite an important little fishing station, and is no doubt well adapted for that purpose, but it must be one of the most dreary spots on earth to live in. Imagine a narrow creek, its entrance facing the N.E., the rocks on either side rising perpendicularly for two to three hundred feet, and forming almost as abrupt a termination at the upper end. The sun can never shine into that place except for an hour or so in the middle of summer as he passes the opening between the cliffs.

After calling at Vardö for coals and a few stores the captain wanted, we proceeded on the 31st to the island of Henö, the passage from Vardö occupying four and a half hours.

In the *Arctic Pilot*, p. 46, is the following description: "Ainovski Islands. Bol (Great) Ainovski Island is 4 miles westward of Cape Zernlyanoi; it is about 4½ miles broad in each direction, 50 feet high, and covered with peat and moss. Mal (Little) Ainovski Island lies south-eastward of Bol Ainovski, and a mile nearer Sredni; it is not so high, but is also covered with peat and moss. These islands produce

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25-5-09.

PINTAIL DUCK'S NEST.

PAGE 4.

splendid blackberries, reputed the best on the whole coast of Lapland for size and flavour, which are sent to Kola and St. Petersburgh. A peculiar kind of duck is found on the islands called Tupik, from the obtuse formation of the bill." (On the Admiralty Chart these islands are named Ainova Island or Great Henö, and Little Ainova or Little Henö.) In reading up the description of the coast-line to be visited, the above at once attracted attention. What were these Ducks with obtuse bills which frequented the islands in sufficient numbers to be mentioned in the *Arctic Pilot?* Here was something evidently worth investigating, and consequently Henö was the first point we made for on the Russian coast.

The best anchorage for a vessel like the *Expres* is in a small bay on the south side of the island, except in S. and S.W. winds, and as the wind was now N.W. we made for it. The beach was alive with birds, chiefly waders, searching for food among the heaps of seaweed cast ashore by the late gales. As stated in the above description, the greater part of the island is covered with peat, on which grow dense masses of crowberry *Empetrum nigrum*, now thickly studded with the black berries of last year. A few small patches of dwarf sallow and birch grow chiefly on the S.E. part, none of them rising above four feet from the ground. Here also is the principal piece of fresh water, a lake several hundred yards in length, which was now entirely frozen over; Ducks, Gulls, and Skuas stood on the snow-covered ice, looking very disconsolate. The peat was riddled in all directions with the burrows of Puffins, but the holes were partly filled with ice and snow, and showed no signs of having been visited by the birds this year, nor were any Puffins seen on land. Many of the holes had been dug out to obtain the eggs and young. Arctic Terns were here in all directions, delighting us with their graceful flight. Many seemed to be feeding on the aforesaid berries. Common Gulls *Larus canus* were plentiful, and made as much fuss over two or three empty new nests as if there were hundreds of eggs about. Great Black-backed Gulls had also commenced their nests on the

north side of the island. Of Richardson's Skuas *Stercorarius crepidatus*, there were ten or twelve pairs, the greater number of the light variety; they must have very comfortable quarters here during the breeding season.

Other birds seen on this first visit were Common Eider, Purple Sandpipers *Tringa striata*, Turnstones *Strepsilas interpres*, Dunlin *Tringa alpina*, Meadow Pipits *Anthus pratensis*, Lapland Buntings *Calcarius lapponicus*, Snow-Buntings *Plectrophenax nivalis*, Oyster-catchers *Hæmatopus ostralegus*, Long-tailed Duck, Shag *Phalacrocorax graculus*, Velvet Scoters *Œdemia fusca*, Herring-Gulls, and Black Guillemots *Uria grylle*. Some bird must often make a meal off the Puffins and smaller birds, as we constantly came across their feathers and remains. Quite half the island was still covered with deep snow, the only signs of renewed life in vegetation being a few angelica plants throwing up their new growths.

June 1st.—It was difficult to realise among our surroundings that this was the first day of summer. In the morning a keen north wind brought up a constant succession of snowstorms, and these continued during the day; the sky thick and murky, and the general effect like that of a bad day in an English February. Although anchored under the lee of the island, the continual rolling became trying after a time, and drove us on land in spite of the weather. We went to the S.E. part of the island, where more grass was exposed. The chief excitement of the afternoon was a Puffin at the mouth of its hole, and it was clear, from the way birds of this species circled over the island to-day, they were anxious to commence nesting. We found the body of a Snowy Owl *Nyctea scandiaca*, recently picked by Gulls; the wing and tail feathers were heavily blotched with brown. A Goose that had been feeding here rose at too great a distance for us to determine its species, as did also two Hawks. There were certainly more Lapland-Buntings than yesterday, and far more than afterwards bred on the island; in fact it soon became clear this island forms a resting-place for migrants, which

find a supply of food here at a time when their usual summer homes are still under deep snow. A White Wagtail and a female Goosander *Mergus merganser* completed the list of birds not noted yesterday.

June 2nd.—After breakfast we steamed over to the mainland to examine the condition of Pechenga Gulf or Peisen fjord (on the chart Pechengi Gulf), which lies nearly due south of Henö, its entrance well marked by two high hills of barren granite. This fjord penetrates nine miles inland in a south-westward direction, but several sharp bends give protection in all winds, and there are consequently some good anchorages. Edward Rae published a map of Russian Lapland in his book, "The White Sea Peninsula," and the map is no doubt accurate as far as those parts which he personally visited are concerned, but not quite to be relied upon respecting the remainder of the interior; on it, by the way, the name of the fjord and river we now wanted to visit is rendered Petshenga. The map shows a series of five lakes on the course of this river; and as the lines indicating the limits of growth of fir and birch approach the sea much nearer in this district than they do to the eastward, we hoped to find a considerable variety of birds.

Our desire to reach the interior was not to be gratified at present, for on rounding the corner beyond Devkin bay we saw that all the upper part of the fjord was still covered with ice; we were therefore obliged to return and anchor in Devkin bay. This bay lies half-way up the fjord on the N.W. side, and affords a secure anchorage in all winds. Close to the shore were two warehouses belonging to the Monastery of St. Triphon, also a house and bath-house for the use of the men in charge. Two good fishing-boats, of Norwegian build, lay anchored near. The whole district near this fjord is the property of the monks, with the fishing and other rights. While the men were busy refilling the tanks at a stream issuing from under the snow near the house, I endeavoured to buy a salmon from the head man. A polite but firm refusal met all my attempts, however; the fish belonged to the monastery, he said. It was rather tantalising to watch him weigh

two, each about 33 inches long and fine deep-bellied fish. Then a younger Russian, whose curly black hair stuck out in all directions from under his cap, put the fish in a sack, the sack on a small sledge, and the sledge in a little tub of a boat nearly as broad as long; finally pulling away up the fjord. I did not envy him his trudge over the sloppy ice, dragging that sledge to the monastery.

Near the house were fifteen to twenty Shore-Larks *Otocorys alpestris*, feeding on a small piece of uncovered ground; while two White Wagtails flitted about from doorstep to water-trough as tame as London sparrows. The first Merganser *Mergus serrator* we had seen this year rose near the shore as we rowed in from the ship. Except these and a stray Herring-Gull, the place was a desert to-day as far as bird-life was concerned. We could scarcely expect it to be otherwise when the whole country, except the Shore-Larks' patch, was buried under two or three feet of snow! And this on the 2nd of June.

After floundering through heavy snow for some distance, we at last got on to higher ground where the snow was firmer, and from the top of the ridge a good view was obtained of the country on the west side of the fjord. In the valley below us were several small lakes covered with ice and snow, and beyond a series of hills, none more than 400 or 500 feet high, stretched to the horizon; there appeared to be very little level ground. The only living things seen were some tame reindeer, obtaining a scanty meal where the wind had partly cleared the snow from the hillsides. On our return a Finn came on board with a salmon for sale; the fish, which was in good condition, measured 44¾ in. by 9 in. deep, and, after some bargaining, became mine for five roubles. The thermometer remained near 32° all day, and the tap of the water-filter on deck was frozen.

On the 3rd we climbed the hills on the east side of the fjord to obtain a view of its upper end, and were much cheered to see a considerable stretch of open water where the river entered. Still, the two or three miles of ice between must be strong yet, as two men

F. 44. 5 *S.* 2.0 *p.m.* 13-6-99.

RUSSIANS NETTING PUFFINS ON LITTLE HENÖ.

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were leading a small flock of sheep over. The only birds seen on the hills were a female Ptarmigan *Lagopus mutus*, and a pair of Dotterel *Eudromias morinellus*. A Rough-legged Buzzard *Buteo lagopus* passed over us in the evening; and some Lesser Black-backed Gulls *Larus fuscus* came into the bay, the first seen this year.

June 4th.—It has snowed every day since we left the Porsanger, but to-day eclipsed them all; consequently our rambles on shore were not prolonged. New birds seen were Redwing *Turdus iliacus*, Fieldfares, and a Black-throated Diver *Colymbus arcticus*. We noticed that some of the birch buds were swelling in spite of the trees being surrounded by two feet of snow.

June 5th.—Having nothing else to do, we steamed across to Little Henö. This island consists of two parts; one some forty feet high, the other a low stretch of land little above the present sea-level, and joined to the first by a large bar of shingle. The whole of the lower portion appears to be an old beach, the upper parts of which have been covered with herbage and a few patches of dwarf sallow. There were large numbers of small birds on the island, of the same species as seen on Great Henö, the only fresh one being a Shore-Lark. Some of the Puffins had decided to lay in spite of the weather, for we found five eggs; the fact that four of these were under stones, and the fifth only six inches inside the hole, was a sure indication of the general condition of their burrows. The poor little beggars who had been trying to scratch out fresh holes must have hurt their feet considerably, for the ground was so frozen it was impossible to dig out a likely hole with a spade. An Oyster-catcher had three eggs on the beach, and a few of the Great Black-backed and Herring-Gulls were laying.

In the evening we returned to the mainland, and anchored in Andarnaia fjord (Andarnaya Gulf in *Arctic Pilot*), an inlet eastward of and close to Pechenga Gulf. Andarnaia fjord is $2\frac{3}{4}$ miles long and half a mile wide, with hills rising abruptly from the water on both sides, so that a landing can only be effected at a few points. The Admiralty chart shows three salt-water lakes at the head of the

inlet; but this is an error, as there are only two. These are connected with the fjord and each other by narrow channels, through which the water flowed so rapidly at half-tide that a boat could not be taken up against the stream.

At the head of the fjord a pair of Ravens had a nest on the face of a cliff in a position which appeared inaccessible without a rope; but as we could see the young ones were nearly fledged, there was no temptation to attempt to climb. After waiting half-an-hour for the tide to slacken, we rowed across the first lake and entered the second; the greater part of the latter was still covered with ice, and the hills around showed one unbroken front, without any opening to a lake beyond. There was no sign of human habitation on the shores of either fjord or lakes, although it was clear men came here for firewood. An Oyster-catcher had three eggs on the shingle bar between the lakes, and several Mergansers passed us. Small birds come to breed later in the season, as we saw the old nest of a Redpoll in a birch near the upper lake.

On the 7th we crossed over to Great Henö, and found the thaw had made distinct progress since our visit a week ago. There were now a few pools of open water, formed from melted snow which could not escape through the frozen earth; these were occupied by Long-tailed Duck, &c., as the lake still showed one unbroken surface of ice. Large flocks of Dunlins were feeding on the shore, far more than ultimately nested here. A few of the Snow-Buntings had paired, and one cock carried some building material. The only fresh species noted to-day was the Red-necked Phalarope *Phalaropus hyperboreus*, a few of these birds being on the sea when we arrived. Of eggs we only found Oyster-catchers (4–3), Meadow Pipit (4), Eiders (3–5), and some odd Gulls' eggs. We returned at night to Devkin bay.

June 8th.—The Finn, Ivan, from whom I had purchased the salmon, came on board, and took a great interest in our coloured pictures of birds likely to be found here; but evidently knew very little about them, even the geese and ducks. At last he confessed he

shot birds, "that good"; to eat them, "better"; but he never troubled what they were like. He said he thought no one in the valley knew more about birds than he did. All we could learn from him was that he had found a swan's nest two years ago by one of the lakes above the monastery. The Russian also came, with the middle cut (8 or 10 lbs.) out of a splendid salmon, as a "present." He declined any payment, but I insisted on his accepting a bucket of potatoes, also as a "present"; whereat he laughed and patted his stomach in anticipation of the good things to come.

We went up the fjord to see what progress the open water was making at the top end; there was certainly more than a week ago, but quite two miles of ice yet remained between us and it; and there was no passage along the shores, as is often the case with ice affected by tides. Both male and female Ptarmigan were on the hill near where we saw the latter on the 3rd; but no nest could be found, although we searched a considerable area carefully. Five Redshanks, feeding on the tide line, were the first seen here this year; and the first Hooded Crow passed near us. Our Russian friend also brought us a Black-throated Diver, which had been caught in the salmon nets, a not uncommon fate we afterwards learnt. A couple of Buffon's Skua *Stercorarius parasiticus*, which I had shot right and left as they rose from a low hill, turned out to be both females; much to our surprise, for they had been sitting close together and apart from the others. The eggs in their ovaries were enlarging, one being slightly more advanced.

The 9th brought dreadful weather, a heavy north wind, constant snowstorms, and fog; on such a day the cabin was the best place, and we stayed there.

June 10th.—The Finn women brought two Divers from their nets, one a mature Black-throat, the other an immature example which, from its yellow bill, was, I think, *Colymbus adamsi*. Buffon's Skuas are evidently gathering here in waiting, like ourselves, for the up-country districts to be cleared from snow, as we counted sixteen this morning.

Two Richardson's Skuas were about the ship, which afterwards nested on the hill near.

As the crew wanted some stores and we were anxious to get our home letters, we returned to Vardö in the evening.

On the 12th we spent a very pleasant day exploring the island off Vardö, on which the new lighthouse stands. It is a comparatively small island, yet we noted seventeen species of birds, most of which were breeding there. One piece of cliff, crowded with Kittiwakes' (*Rissa tridactyla*) nests, formed a very pretty scene of bird life; for a pair of Ravens had built their nest under an overhanging shelf, in the centre of the colony. Several Kittiwakes had nests within six feet of the Ravens' abode, regardless of the fact that six or eight recently picked skeletons of their relatives lay at the foot of the cliff. The young Ravens could be seen plainly from below; and the two old birds flew round, attacking any Kittiwakes who approached too near the nest, and were attacked in turn when they trespassed near other nests. At last both birds settled on a point of rock at the top of the cliff, and evidently gave us their views on our intrusion in the most emphatic language they knew, the male projecting the feathers on the throat until these looked like a large beard, while the female elevated all the feathers on the top of her head, exactly as my tame Ravens, Ralph and Susan, did, when arguing a point with me or between themselves.[1]

June 13th found us back at Little Henö. Other disturbers of

[1] These latter birds, with two others, were brought back from Norway in 1896, from a nest on an island near Tromsö. They were rather subdued by the voyage across the North Sea, but on reaching *terra firma* their appetites and voices returned in redoubled power, and at York their demands for food could be heard over the greater part of the platform. Ralph soon developed a power of talking, but without discretion, as one of his earliest escapades was to inform the Vicar's wife she was a rascal, and it was distinctly unkind of him to ask the under-gardener, whose duty it was to clean out the birds' enclosure, and who occasionally took more than was good for him,—"Charles, are you drunk?" The bird would sit on my walking stick and say, "You *are* a naughty boy," quite as clearly as a human being. His ideas on domestic discipline were drastic, and when Susan offended he would hold her leg in one foot while he laid on punishment with his beak. In the spring of 1900 he considered it was time they commenced "house-

F. 44. 2 S. 1.0 *p.m.*

TRIPHONA RIVER, PECHENGA GULF.

14-6-99.

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bird life had arrived before us, and are depicted in Plate 5. The party consisted of three youths, the eldest about seventeen, and three girls, who appeared to be from eighteen to twenty-two. They had drawn their boat up the beach, and were encamped in one end of it, protected only by a piece of old sailcloth. Although they had a small stove, the arrangement was rather airy for the weather we had lately enjoyed. In front of the canvas is shown a heap of Puffins the people had been catching. This was done by spreading old fish-nets of large mesh over those parts of the ground where the burrows were plentiful; and the birds seemed to think because their heads would go through, their bodies could follow. The upper snow-drift shown in plate must have been still over twenty feet deep, as it covered all the face of a cliff, except the small portion shown on the sky-line.

Our chief prize here was a Turnstone's nest with four fresh eggs, on the low spit of land previously described. The nest was placed in a patch of dwarf sallow ten inches high, and near the edge of a bank; the slight depression being lined with a few dry grasses and dead leaves. This was almost the only nest of the species found without long watching; for, remembering our experiences in 1893, I searched the scrub in hope that a Turnstone might have occupied it.

We afterwards crossed to Great Henö; here a party of nine had recently landed in search of birds and eggs, and were seated round a fire, drinking tea. They put a large piece of sugar in their mouths

keeping," but Susan differed; and the argument waxed so warm on one occasion he threw her bodily into an old coal-hole under their cage. And yet on most questions of tit-bits and similar matters Susan generally had the best of him by sheer superior feminine ability. Alas! an acute attack of inflammation, or some poisonous substance, carried him off in the autumn of 1900. I gave another male bird to my brother; this one also developed considerable powers of talking, although he died earlier than Ralph. The fourth bird was given to a lady friend, but unfortunately escaped outside the grounds one Sunday evening and was killed by some loafer. Susan is still in good health. And now for the reason of this long history. Both male birds talked well; the female has (1904) only acquired a few whistling notes, and to say, "How are you?" and a friend tells me that his Raven, which he believed to be a female, never showed any disposition to talk. It would be interesting to know whether the observations of others confirm the above supposition that male birds are more ready to imitate human speech than females.

before drinking, not into the cup as our custom is. If the men were Russians, as they stated, they were far the dirtiest specimens I ever saw.

There was a great change since our last visit four days ago; the snow-drifts were now melting rapidly, and the ground was thawing, while large pools of water were forming in many places, but the lake was still covered with ice. Dunlins were busy in all directions, and crept about through the grass like mice within a few yards of us; a careful search only revealed nests hollowed out, but none lined as yet. The Puffins had now commenced to lay in earnest, and were here in thousands on sea and land. I have little doubt these are the "ducks with bills of an obtuse formation, called Tupik," described in the *Arctic Pilot;* while the "blackberries" are multebær, which grow very plentifully here. We saw a number of Razorbills *Alca torda*, over the island, who appeared to be nesting in holes like the Puffins, but did not succeed in finding any of their eggs.

New birds seen to-day were a Ruff *Machetes pugnax*, a pair of Wigeon *Mareca penelope*, and some Ringed Plover *Ægialitis hiaticola;* the first egg of Richardson's Skua this season was found near the shore among crowberry.

In the evening we steamed over to Pechenga gulf, and rejoiced to see large quantities of ice coming out to sea. There was still a considerable amount of ice in the upper portion of the fjord, but it was now so rotten and broken up we forced the ship through without much difficulty, and at last were safely anchored off the mouth of the Triphona river (Trifonovka River on Admiralty chart), the highest point to which a ship can go. At high tide this anchorage is quite 1½ miles from the head of the fjord, but the whole of that distance is filled up with detritus brought down by the river Pechenga, and is only navigable for small boats from half to full tide. We were the first to reach the top of the fjord by sea this year. The day had been cloudy, with slight rain; but in the evening the weather cleared, soon after midnight the sun was again shining, and the air was full of the

F. 44. 3 S. 11.15 *a.m.* 16-6-99.

PECKENGA RIVER AND VILLAGE.

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songs and calls of birds, while the sea was so calm that the reflection of the hills was almost as clear as the reality above.

June 14th was spent in exploring the Triphona river, but the snow was so deep and soft that we scarcely walked a mile up its course. The state of the country will be best realised from Plate 6, which represents the river where it is affected by the tide; the stream above is impassable by boats, being little more than a large brook. Near the mouth of the river were some cottages, surrounded by enclosed grass land which had been well manured recently. It is on such spots as this that all the small birds are to be found in backward seasons like that of 1899. Red-spotted Blue-throats *Cyanecula suecica*, Temminck's Stints *Tringa temmincki*, and Willow Wrens *Phylloscopus trochilus*, were common; and White Wagtails, Meadow-Pipits, Redshanks, Golden Plover *Charadrius pluvialis*, and Whimbrel *Numenius phæopus* were seen, while a Cuckoo *Cuculus canorus* was only heard. About a mile from the houses we found a Hooded Crow's nest in a birch tree; and had the satisfaction of poking out three young with quill-feathers just showing. I never spare the nest of this bird, for, as in the case of our House-Sparrow, it is difficult to find much evidence of its usefulness. The lining of the nest was made of reindeer-hair felted together, quite two inches thick, and forming a warm bed for the little rascals. Divers—frozen out from the lakes—and Long-tailed Ducks were very plentiful on the fjord; and their cries were so noisy at times during the night that there might almost have been a football match in the distance!

June 15th.—A halo round the sun yesterday, rain to-day. A solar halo is even a surer forecast of bad weather than a lunar one, as I have unfortunately often proved. We rowed up to the head of the fjord, and attempted to make our way up the river, but it was covered with heavy ice, and obliged us to land at a small village. The principal building here belongs to the monastery, and forms a house of rest for the monks when arriving or departing by sea. Round the house are stables, carriage-houses, and a warehouse filled

with flour and other stores for sale to the peasants. A telegraph station has recently been established here, from which messages could be despatched to Norway, Archangel, and intervening stations.

After interviewing two or three young monks, and finding that none of them understood anything besides Russian and Finnish, we went to the telegraph station; here a pleasant young fellow spoke a mixture of High and Low German combined with Norwegian—a complete jumble. However, we learnt from him that horses and carriages could be obtained to take us to the upper and principal monastery, 25 versts (17 miles) distant. We also found a Norwegian who had been engaged here the last two years as head boat-builder, and was turning out some very good work, dilapidated old caricature of a man though he was.

A walk of two miles through much snow and water brought us to the original monastery founded by Saint Triphon. On the way we passed a large brick-kiln belonging to the monks; two sizes of bricks were being made, both differing from those usual in England. The clay was obtained from a large glacial deposit close to, which had been exposed by a small river, a tributary of the Pechenga. Great stacks of timber surrounded the kiln, the produce of some acres of well-wooded country.

At the time of our visit the principal building appeared to be empty. It was a well-constructed house, built up of large pine trees laid horizontally. One or two monks were living in a small cottage near. Two churches completed the group, the first a small low building of considerable age, and the second a larger one, square, with octagonal roof covered with sheet-metal painted green. It was here we first discovered what an absolute fraud our pilot was as a Russian interpreter, the work for which he had been principally engaged. He knew very little more Russian than we did, and generally spoke to the natives in English! for his brain found considerable difficulty in sorting out the various odds and ends of languages he had acquired. A pleasant Russian, clad only in shirt and trousers in spite of the heavy rain, showed us the churches; but of course we could learn nothing

from him about them. The larger church had been erected over the ashes of the monks killed by the Swedes in 1590, and contained a number of icons and pictures. One of the latter, protected by a mahogany case and glass, was well painted and very pleasing in colour, with the finish of an old Dutch picture.

The ice on the river had just broken up for several hundred yards, and the floating masses were being piled up below by the current, forming a dam which raised the level of the river a yard during our short stay. The upper reaches were still covered with ice as far as we could see from a hill near. On returning to the village on the fjord we had more time to devote to the birds, which were swarming on the manure-heaps and open ground round the houses. Unfortunately we had left the guns on board, for one of the first birds which attracted attention was, I feel sure, a Petchora Pipit, *Anthus gustavi*. It allowed us to approach within fifteen yards, and to watch it for some time through our glasses; a larger and handsomer bird than the Meadow-Pipit, with the breast more heavily striped. The next day, when we had guns, the bird was gone. We also noted a House-Sparrow *Passer domesticus*, a parasite of civilised man we scarcely expected to meet with here, Grey-headed Wagtails *Motacilla viridis*, and Red-throated Pipits *Anthus cervinus*.

Our return journey occupied forty minutes, for though the tide was with us some time was wasted by running aground on sand-bars. A bank of sand forms the left side of the bay for some distance, and is composed of stratified layers deposited at an angle of 45°, covered by two or three other beds of sand laid horizontally. The lower layers have probably been deposited in the same manner as those we saw in process of formation in Novaya Zemlya in 1897.

June 16th.—To-day we took our guns to the village, but quite two-thirds of the birds had disappeared; we secured specimens of the House-Sparrow, Grey-headed Wagtail (male and female), Lapland Bunting, and Whimbrel. A man at the monks' house objected to my shooting the Sparrow on the roof, so I persuaded the bird to go

outside the enclosure. Only two were seen at this time, but early in July a pair had young under the eaves. The eggs in the ovary of the female Wagtail had commenced to enlarge. We afterwards walked up to the monastery to take some photographs; and saw several Fieldfares about, but could find no nests. A Cuckoo flew close to us.

Plate 7 represents part of a village on the bank of the Pechenga, through which we passed. All the inhabitants we saw looked as well-fed and comfortable as those of our English villages.

As it was obvious that the state of the country and woods would not allow of our penetrating into the interior for nearly a fortnight, we decided to occupy the time in exploring the coast to the south-east; and steamed down to Devkin bay in the afternoon. Soon after our arrival the Russian came on board and presented us with a fine salmon of about 35 lbs.; of course we gave him presents in return, still it was clear the salmon was the result of a "kind thought" far more than from any expectation of what he was to receive. We got to like that man very much—a pleasant genial soul.

The Buffon's Skuas had now all left this part, probably for the interior; and a pair of Richardson's Skua had two eggs slightly incubated close to the spot where I had shot the former on the 8th. The nest was merely a saucer-shaped depression made by the birds, without any lining beyond the lichen &c., originally growing on the spot. The Dotterels, like the Buffons, had moved on; and in their place were some Blue-throated Warblers, not seen here before.

June 17th.—We crossed to Great Henö in the morning, and spent eight hours on the island, with results scarcely as good as we hoped for. We found four nests with eggs of Richardson's Skua; in two pairs of birds both parents had white breasts, one pair were dark coloured, and of the last pair one of the birds was light, while the other was dark. Other eggs found were those of Meadow Pipit (six), Common Gull (the first this year), Great Black-backed Gull, Eider, Arctic Tern, and Black Guillemot. We saw a Blue-throated Warbler here for the first time

F. 44. 12 *S.* 5.10 *p.m.* 22-6-99.

REDWING'S NEST IN BIRCH.

PAGE 26.

to-day. Vegetation had made a decided start in growth, and was more advanced than anything we had seen round Pechenga fjord.

After dinner we steamed to the N.W. point of the Ribatchi or fishermen's Peninsula (Ribachi, *Arctic Pilot* and chart; Ribatschi, E. Rae), and anchored in the harbour of Vaida- guba (Vaida Bay *Arctic Pilot;* Vaid Bay, chart; Vaidda Gûba, E. Rae). This place, founded in 1864 by a colony of Norwegians, seems to be a prosperous fishing-station, and three sea-going vessels were at anchor, besides a number of fishing boats; the captain of one of the former told us he was from Middlesborough, with a cargo of salt. Among the houses on shore were two or three good warehouses, a well-built post-office, and a telegraph station.

We landed as soon as the anchor was down, and walked over the hill towards the N.W.; a bare, desolate country with little vegetation except lichens. All the small pools were coated with ice, and the surface of the snow was frozen; a fact on which we presumed, and consequently went through into two feet of snow and water, soaking both arms and legs. The rest of the return march was at "quick step." The only birds I find noted in my diary were a pair of Turnstones, which we watched for half-an-hour and came to the conclusion they had no nest as yet.

June 18th.—We landed at noon on the south side of the bay and walked for some miles over the country between the sea and the hills. Birds were numerous, but the only nest seen was a Shore-Lark's, with one egg. Blue-throats and Lapland Buntings were common; and we also saw Snow-Buntings, Meadow-Pipits, White Wagtails, Shore-Larks, Golden Plover, Turnstones, Dunlins, Ringed Plovers, Redshanks, Purple Sandpipers, Eider Ducks, Arctic Terns, and in the harbour some Gulls, which were too far off for identification. Thickets of sallow and birch grew in some of the marshy parts; but nothing approaching the dignity of a tree was to be seen. There was also more herbage on this side than on the country traversed last night; but neither grass nor scrub showed any signs of green yet. We saw

six or eight lemmings and a toad to-day, the latter the first of its species I remember having seen in the north.

In the afternoon we steamed to Zip-Navolok (Tzuip navolok, *Arctic Pilot;* Sibt Navolok, E. Rae), a small bay close to the N.E. corner of the Ribatchi peninsula, which affords good anchorage in all but S.E. winds. At one time this was a prosperous fishing station, and Governor Engelhardt states[1] that as many as 1000 men then frequented it in the summer; but the fish deserted the locality, and the men followed them to other more favoured grounds. The few inhabitants left appeared to be chiefly of Norwegian origin. One, who acted as postmaster, had caught 300 seals during the last winter, and another man had secured 200.

We landed after dinner and walked across a large marshy district to the coast on the N.E. side. There were many birds about, especially Arctic Terns, Dunlins, and Red-necked Phalaropes, but they did not appear to have nested yet. At the upper end of the marshes we saw three "grey" Geese, and watching them was a grey or silver fox, the first I had seen alive. For quite half the distance between the two coasts the land is covered by great sand dunes, arranged in long rolling ridges.

June 19th.—We first rowed over to Anikiev Island, a bare desolate spot clothed only on its highest parts with a little grass, and composed of a dark grey schist pitched up till the strata is almost vertical. The rock has been split by the frost in many places, into pieces almost as thin as roofing slates. Near the centre of the island is a large natural slab of rock, on which are engraved many of the names of ancient navigators (chiefly Norse) who have called here. The oldest inscription is said to be dated 1510, but the earliest we could decipher was 1615.

After tramping over most of the island and finding nothing of ornithological interest, we crossed to the mainland and walked up the south side of the Anikievka river, a small stream entering the

[1] "A Russian Province of the North," p. 124.

sea near the centre of the bay. For the first one or two miles the country was all covered with sand, and carpeted in most parts by a thick growth of crowberry. We first found two nests of Richardson's Skua, each with two fresh eggs; one pair of birds were both black; the other two were both white-breasted. Then after some trouble we located a Buffon's Skua on the higher ground with one egg. When the bird knew we had found the nest, it sat down twenty yards off, as if on another nest. This was the only attempt made to lure us away. There was absolutely no nest beyond a slight depression the bird had made in the crowberry. Both species of birds often nest on this plant, and their eggs harmonise well with its colours.

At the highest point reached we noticed a curious circumstance; there had recently been a great rush of water from the higher lands, cutting trenches out of the snow-drifts several yards wide and two to three feet deep. This water had deposited the snow in the valley in broad stretches like sand. Many of the incidents of a northern thaw are so different from those we observe in England, it is difficult to realise them. The river here was a strong clear stream some three feet deep, running over a solid bed of ice formed during the winter.

The following species were noted at Zip-Navolok: White Wagtail, Meadow-Pipit, Snow-Bunting, Lapland Bunting, Shore-Lark, Raven, Cormorant *Phalacrocorax carbo*, Grey Goose (sp.?), Eider Duck, Dotterel, Golden Plover, Oyster-catcher, Red-necked Phalarope, Dunlin, Temminck's Stint, Arctic Tern, Great Black-backed Gull, Richardson's Skua, Buffon's Skua, and Black Guillemot.

June 20th.—On leaving Zip-Navolok we steamed down the coast towards the south, and after passing Sharapov point (Sharanov on the chart) came to a cliff 500 feet high, which forms the S.E. extremity of the Ribatchi peninsula. Here was established a large colony of Kittiwakes, among which were a few Guillemots and Razorbills. The cliff, with its mass of bird life, and a fair-sized waterfall coming down its face, formed a pretty picture. Not one among all the Kittiwakes'

nests into which we could see contained three eggs, although several clutches of two were much incubated.

The first bay and valley after passing this cliff is called Korabelnaya bay (Korabelni on chart); as the rivulet appeared on the beach from under an arch of snow, which covered its course as far as we could see up the valley, we went on to Mocha bay. Here were two rough huts on either side of a stream which brought down a considerable body of water. Landing on the east side we struck up country, following the edges of the terraces to avoid the snow. Most of the valley was still under deep snow, and the river either rushed down between walls of snow, or widened out into large pools where its course was choked with loose ice; the whole a most desolate scene for the day before midsummer. In one of the cliffs forming the side of the valley we found a Rough-legged Buzzard's nest containing three fresh eggs only slightly marked. Higher up a Buffon's Skua seemed interested, so we sat down to watch it; after waiting some time, it flew to a piece of rising ground, clear of but surrounded by snow, and settled on a nest with one egg. Other birds seen here were Redwing, Blue-throat, Meadow-Pipit, Wheatear *Saxicola œnanthe*, White Wagtail, Lapland Bunting, and Willow-Grouse.

June 21*st.*—After landing to take some photographs, we went to Eina bay, the next inlet towards the west; and walked up the west bank of the rivulet. There was much snow here. A pair of Buffon's Skua on the upper ground had not nested yet, in fact the only nest found was a Ringed Plover's on the beach, with two eggs. The species noted in addition to those at Mocha were Red-throated Pipit, Shore-Lark, Raven, Falcon (sp.?), Long-tailed Duck, Oystercatcher, Dunlin, Temminck's Stint, Golden Plover, and Red-necked Phalarope.

We next steamed to the head of Motovski gulf, where it becomes an almost land-locked bay, and would be a first-class harbour if there were only water enough. The place was named Novaya Zemlya by Admiral Lütke (in the Russian service), who did so much good work

F. 16. $\frac{1}{2}$ *S.* 9.30 *a.m.*

24-9-90.

JOHAN REGINA AND FAMILY.

(ONE OF JOHN WOLLEY'S SERVANTS.)

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during the years 1821, 1822, and 1824 in exploring the coasts of the country more commonly known to us by that name. In the last *Arctic Pilot* it is rendered Novoi Zemli, and is generally known to the Russian traders as Ozerko (small lake). At one time this harbour was favourably considered by the authorities as the site of the official port for the Murman coast, but it was decided to be at too great a distance from the open sea and the main line of traffic. The bay is surrounded by low hills, still covered with deep snow at the time of our visit, a few black lines showing across the general whiteness and marking the edges of terraces. There are only three or four huts, scarcely worthy of the name of houses, here; but even the few people they contain are rapidly exhausting the supply of birch for firewood. We hardly saw a bush with wood large enough to burn, much less a tree; and the inhabitants were collecting the stumps they had left when cutting down the trees. As the latter operation had been done in the winter, three to four feet of each tree remained buried in the snow. In a few years peat or imported wood will be the only fuel available.

We landed after dinner and walked across the isthmus to Volokovaya bay, an inlet of the Varanger fjord. This narrow neck of land—scarcely a mile wide, connects the great Ribatchi peninsula with the mainland, and is a low marshy tract but little raised above the present sea-level; some pools near its centre send their waters into both seas. We walked most of the way on a very distinct ancient beach made of water-worn stones, and one or two other beaches could be plainly traced at different levels; so that Ribatchi was probably an island within comparatively recent times. The *White Sea Pilot* for 1887 states that Ribatchi was formerly shown on old charts as an island, but gives no particulars respecting the charts. The little birches showed scarcely a sign of breaking into bud; the grass was brown and dead, covered in all directions by last year's crop, which the lemmings had mown. The Buffon's Skuas take heavy toll of the latter, hawking over the ground for them and hovering at times like Kestrels; they

are most graceful birds. We only found two nests, a Shore-Lark's and an Oyster-catcher's, each with two eggs.

June 22nd.—Leaving "Novaya Zemlya" at 10 a.m., we steamed down to Litza fjord (Litsa on the chart), the head of which was reached four hours later. This fjord is much more picturesque than the Pechenga; the passage winds somewhat, and is narrow in places, with fine precipitous rocky bluffs rising several hundred feet above the sea. All available pieces of low land are occupied by huts, most of them built of turf. The valley, through which the river Litza flows into the fjord, is a huge trough between two ranges of hills, the lower portion of which has been filled up in parts with deposits of sand to a height of 170 feet above the present sea-level. We saw these sand deposits stretching for miles up the west side of the river, forming a level plateau cut by ravines, where small brooks came down to the main stream and had excavated V-shaped hollows 50 feet deep and 100 feet across. Rae's map shows a fair-sized lake in the course of the Litza, so we rowed to the east bank to make inquiries respecting it. After securing the boat to the snow-foot which covered the whole of the river-bank, we went up to a group of huts; the owner of the only wooden one spoke a little Norsk, but could tell us nothing about the lake. So, borrowing his boat to cross a side stream half a mile up, we started to explore the east side of the valley. For a short distance the country was dry and the birch had all been cut for fuel. Then we came to a stretch of marsh in which grew a quantity of birch, some of them twenty feet high. This wood was full of the songs of birds, and we soon found nests of Redwings and Fieldfares. Plate 8 shows one of the former containing six eggs. The snow here was quite a foot deep, and where it had melted, the ground was mostly under water—not pleasant walking. I expect the marsh dries in summer, or the trees would not look so healthy. Blue-throats were singing on all sides, and I shot specimens of Mealy Redpoll *Linota linaria*, Reed-Bunting *Emberiza schœniclus*, and Willow-Wren; in fact I never remember any wood in the north where birds were so plentiful as

F. 44. 1 *S.* 12.15 *p.m.* 24-6-99.

TWO LAKES 300 FT. ABOVE LITZA FJORD.

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they were here, nor did we by any means exhaust its treasures on this first visit.

After leaving the marsh we climbed a steep hill—an offshoot from the range bordering the valley—through which the river, or its predecessor the glacier, had cut its channel. Then, down to two decent houses inhabited by Russians, of whose language Einar, our Norwegian, understood very little. Temminck's Stints and other birds, including of course White Wagtails, were about the houses. Next, more wooded marsh without birds, although it looked just as suitable for them as the first; and then another bluff. In the hills we passed on our side of the river were three pairs of Rough-legged Buzzards, two of whose nests we found. One of these was inaccessible without a rope; the other contained two well-marked and fresh eggs. This nest had taken us above the tree-line, and we continued round the hill for some distance until we obtained a good view for several miles up the valley, but no trace of a lake could we see. Below us was a strong rapid in the river, and several more rapids were in sight, all of them sufficient to stop a boat. The sun now came out for a short time and lit up the scene; the hills, where clear from snow, showed a pretty faint emerald-green colour, owing to their universal covering of reindeer-moss and lichens. All the hills in sight had been ground down and rounded by ice, their tops were covered by erratics in all directions. As it occupied two and a half hours to walk back to the fjord, we had probably penetrated about seven miles up the river, and could see over three more, so that there is no lake within ten miles of the sea, and from what the natives told us I feel sure none exists higher up on this river. I have on several occasions been taken long "wild-goose" chases after lakes which never existed, and I think the mistake arose from the natives using the same term for a long deep reach in the river—a salmon pool in fact—as they do for a lake.

On arriving at the shore we found the Finn's boat 150 yards from water, and could see our own in the distance, quite half a mile

from its proper element, so we decided to borrow the Finn's till next high tide. After a rather exciting time of sticking fast on sand-bars, shooting rapids, &c., we at last reached the ship at 11.30 p.m.

June 23rd.—As we landed on the west bank to-day three White-tailed Eagles rose off the hill above us, and I saw at once the nest on the face of the cliff, but after climbing to a point forty feet above the nest it proved to be empty. There were far fewer birds on this side of the river. A pair of Willow-Grouse rose six feet off, and both of the birds were in much more advanced plumage than those seen on the Ribatchi peninsula; the red on the cock bird extending over most of his back, while the only white visible on the female, as she flew off, was on the wing-tips.

After lunch we crossed to the east side to visit the Finn. His eldest boy had shown us a nest yesterday which he had removed two or three days before, when spreading manure. He had taken only the inner lining and placed it in a piece of short grass beside a little mound, where it lay quite exposed, yet the bird had followed it some yards and laid two more eggs. To-day I shot the bird as it left, a Red-throated Pipit, and saw she had laid a sixth egg. Going on to the wood visited yesterday, we found the nest of a Redstart *Ruticilla phœnicurus*, containing six eggs, and shot the female; the nest was placed on the top of a rotten birch, and was made of moss and fine grass, lined with a few feathers. We also shot to-day the first Brambling *Fringilla montifringilla* (a male) we had seen this year; also a young Siberian Jay *Perisoreus infaustus*, the remainder of the family to whom the latter belonged being scattered through the wood. This species generally nests in April, when the country is inaccessible except on *ski*. Both old and young Siberian Jays are endowed with an unlimited supply of curiosity, but very little shyness; I remember a family once in Norway spending half-an-hour in the trees within a few yards of my wife, apparently deeply interested in her knitting, and keeping up a constant chatter. Many of the trees here had been

bored with holes that looked like the work of Woodpeckers or Tits, but we saw no species of either.

June 24th.—Although work was only finished at 1.30 a.m. we were up at seven, as we had arranged for the Finn to take us to some lakes. Egg-blowing, skinning, photographs, diaries, cooking, &c., leave very few idle hours in the north. It is only "the unacquainted" who express surprise when a small party fail to bring back also a full collection of the plants, insects, and rocks, with other trifles! On our arrival at the house we found the whole family in their best things, and I have reproduced the group (Plate 9). As it turned out the man was of some interest to English ornithologists. Conversation was carried on under great difficulties, as everything had to be translated twice, and our pilot the interpreter was a duffer! However, we gradually learnt that the Finn had been bird-nesting with an Englishman before, more than forty years ago. In this country? No, he had only lived here about twenty-five years. Before that his home was near the top of the Gulf of Bothnia. The Englishman came there several years, and this man worked for him eighteen months, driving his sledge, collecting eggs, &c. He went on to tell how the Englishman once paid twelve roubles for six little eggs. "Far too much." I suspected these were among the first eggs of the Waxwing *Ampelis garrulus* known in England—for without doubt the Englishman was John Wolley, although the man could not recollect his name; but it was impossible to get any clear description of the bird through that pilot. However, the matter was set at rest when the man came on board, for he recognised a coloured copy of Mr. Dresser's plate of this species as the parent of these dearly purchased eggs. How differently we value things. These eggs were perhaps among those sold at Stevens' Auction Rooms on April 2nd, 1859, for £3 each. A most interesting account of Wolley's discovery of the breeding of the Waxwing will be found in the *Ibis* for 1861, pp. 92–106, by Professor Alfred Newton. With a good interpreter we should doubtless have extracted many other interesting details from Johan Regina

respecting the Arctic life of one of England's leading ornithological discoverers.

Johan took us a long walk over the hills, during which we visited three good-sized lakes, the first 300 feet above sea-level, the second 400 feet, and the third not more than 100 feet. All three lakes were said to contain much fish, and many Ducks to nest round the second in favourable years; but at the time of our visit all three were still covered with heavy ice, and most of the hills surrounding them by deep snow-drifts. Johan walked out forty yards on the lowest lake to pick up a Long-tailed Duck I had shot. And this on June 24th! Truly a most unfortunate season for a voyage of exploration (Plate 10). We found to-day the first nest of the Bluethroat, with four eggs. It was placed on a bank facing south, and was made of moss outside, well lined with fine grass. Another first record was a Mealy Redpoll's nest with one egg, so that the small birds were making an effort to build in spite of the season. The only other birds noted during the walk were Whimbrel and Golden Plover.

In the evening Johan came on board for some plaster for his wife's leg, a cut having gathered and made a nasty place. I sent a supply of boracic ointment as the least likely to cause further mischief, which is the great point in amateur surgery. We had an interesting time at night watching the birds on the sand-bars at low tide; among them were four or five male Goosanders and a pair of Godwits, which we believed to be the Bar-tailed, *Limosa lapponica*.

The day had been beautiful, with bright hot sun and scarcely a cloud till 1 a.m., the first really fine day of the season. As Midsummer Day was already past, it may be worthy of note that during the last three days we had seen three flowers, and a small piece of birch, growing over a warm rock, had green leaves; other vegetation showed scarcely a sign of life. And this was not Grinnell Land, but lat. 69° 25′.

June 25th.—The morning was bright, with a N.E. wind. Leaving

F. 32. 3 *S.* 1.5 *p.m* 2-7-01.

GRASS MOUNDS ON HENÖ.

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our anchorage at 11.30 a.m., we steamed down the fjord and round the Ribatchi peninsula for Henö island; but after passing Tzuip point fog came on. The captain ran by compass till 6 p.m., when some small islets showed close ahead, and as neither he nor the pilot were clear what they were, we were obliged to put down the anchor and stop there for the remainder of the night. Fortunately, there was neither wind nor swell, so we lay in comfort.

June 26th.—The fog having lifted in the early hours of the morning, we reached Great Henö at 11. As a variety of things were wanted both for the crew and ourselves, I decided to camp on the island while the steamer went to Vardö for them. Our kit was all on shore and the tent up in less than an hour; the spot selected being near the south shore and close to a large pool which afforded a chance for a bathe at last, while a snow-patch provided drinking water. The weather was glorious, a cool pleasant breeze and brilliant sun without a cloud in the sky. What a change in the aspect of the island since our last visit nine days before! Then the ground was hard frozen, half its surface under snow, and the lake a sheet of ice; now the water was sparkling in the sunshine, and scores of ducks swimming on its surface. Some patches of marsh-marigold were in flower, and others were pushing up both leaves and buds so rapidly, we could see a distinct change in twenty-four hours. Large areas promised soon to be masses of that beautiful yellow flower *Trollius europæus*, while in others *Archangelica officinalis* was throwing up its new growths, and already covering the ground in parts. This last plant grows so luxuriantly here that it allows no rivals where it has taken possession, and smothers everything over areas thirty or forty yards across; some of last year's flower stalks were seven and eight feet long. And the birds too had not been idle, for we found the eggs of eleven species during the day.

For some hours after our arrival four Ruffs were playing on the opposite side of our pool, one with buff collar, one with red, and two with nearly black collars; a great treat to both of us, as it was the

first opportunity we had had of watching these birds at close quarters. Several Red-necked Phalaropes were generally on the pool, and when all was quiet, souse would come some old Eider or Velvet Scoter into it; but these never cared to remain long near our tent, however peaceful it looked. I may say here that no gun was fired during our visit.

A large part of the island in the neighbourhood of the lake is covered with great tussocks or mounds of coarse glaucous green grass (see Plate 11), many of these being five or six feet high, exclusive of the live grass on the top; the angelica covers two feet of the bases in the illustration, and largely destroys the effect. These mounds appear to be the remains of many generations of grass; they are almost entirely composed of vegetable mould and fibre; in fact, there is no sand to build up mounds round this grass as in some parts of the English coast. They afforded admirable nesting ground for several species of birds; Common Gulls often occupied the tops, while Lapland Buntings and Meadow-Pipits found good shelter in the sides, and several Mergansers had nests in holes near the bottom. After some little trouble we found a Turnstone's nest with four eggs in the side of one of these tussocks. These birds are often so difficult to watch to their nest, there is a real pleasure in beating them; and their handsome eggs vary sufficiently to make a good series a desideratum. Arctic Terns were now nesting in thousands in all directions—on the wet sphagnum-moss in the marshes, on the crowberry covering the higher ground, and among the shingle of the shore; so that when it is remembered the island measures four miles each way, and that no part was really free from breeding birds, although they were certainly much thicker in some places than others, it will be clear that "thousands" is not an exaggeration. And the noise they made! It was often impossible to pick out the notes of other species. Restless little creatures, they seemed to be never still for more than a minute or two, even when incubating. I was much impressed during this visit by a fact which has been recently

described by Mr. E. Selous. As we lay watching some bird to its nest, suddenly, without the slightest apparent cause, the babel of voices ceased, and every bird in sight, Terns, Gulls, Skuas, and even some of the ducks, would rise into the air in silence, wheel about several times, and then return with redoubled chatterings. We were the only human beings on the island at the time; nor were there any other large mammals there, or birds of prey. No signal was perceptible; it was as if an electric shock touched them simultaneously. I noted the same phenomenon here in 1901, and amongst such a mass of bird-life it was very striking. Sometimes these peculiar movements took place at intervals of less than ten minutes.

A hasty dinner at 9 p.m. and then out to work again. Charles devoted considerable time to positively identifying the nests of some Lesser Black-backed Gulls, a large colony of which had commenced to lay near the north and east shores. Not one of this species had been seen on our former visits, so that they are as comparatively late in breeding here as on the Norwegian and British coasts. I spent an hour on the hill above the lake watching the ducks, in the hope I should see one of the Velvet Scoters returning to her nest, and although this idea proved a failure, the time was not wasted among the surrounding bird-life. On walking round the lake I found the Red-throated Divers *Colymbus septentrionalis* (the only divers seen here), had just commenced to prepare their nests. In a marsh near the lake was a nest of Richardson's Skua containing three eggs, all slightly incubated. This is the only instance in which I have found more than two eggs in the nests of this species. After rejoining my brother, we hunted slowly down the coast to the S.E. point, disturbing two Turnstones which seemed anxious, and watched them for nearly an hour in a biting cold wind—for it was now considerably after midnight—without result. The leading bird sat during most of the time on the edge of an old sea-beach, watching me from the shelter of some coarse grass, but would come no farther, and when at last we went down to the place we could find nothing. On returning the

next day, however, Charles saw the bird fly off, and we soon after found the nest under a flat stone within a few feet of where the bird sat the night before, and in a direct line between us. Although seventy or eighty yards off, I expect I must have been too visible on the sky-line, for it is often very difficult to select a spot for watching which commands the suspected area and affords any shelter; while to be on the sky-line is generally fatal.

A few Willow-Wrens were noted here to-day for the first time. We turned in at 5 a.m., after seventeen hours of the most perfect Arctic weather I ever remember, during which the sun had swung round the heavens in an absolutely cloudless sky.

June 27th.—Such weather as we were now enjoying was too good to waste in sleep, and we were out again at 9.30. The chief incident to-day was another contest with Turnstones. We had noted a pair in the day, but could make nothing of them at the time, and so returned to the attack about 10 p.m. Charles and I having settled about eighty yards apart, the birds also settled some hundred yards from both of us, and for twenty minutes they never moved more than a yard; then they worked down gradually to a point midway between us, the same bird always leading; next they turned towards me, and came on and on with many a zigzag, till it seemed the nest must be underneath where I was! For half-an-hour I sat almost without winking. Once, when eight yards off, the bird fluttered down into a hollow, but promptly reappeared, and came on to within six yards; then an old Puffin appeared from a burrow close by, regarded me steadily with one eye, then turned the other, and not liking my personal appearance, retired underground. This shook the Turnstone's confidence somewhat; and cold, cramp, and a desire to cough, made the situation unbearable any longer. We searched all the area round most carefully without result; it was a bare stretch of peat with scarcely a scrap of vegetation, and full of Puffin holes. We returned the next morning and found the sentinel bird away feeding; the other flew up close to our feet out of a Puffin hole in the hollow

F. 16. 1 *S.* 11.0 *a.m.*

SERVANTS OF THE MONASTERY.

2-7-99.

PAGE 40.

where it had settled the night before, and there was the nest 18 inches from the mouth, containing three eggs more than half incubated; a few dead sorrel stalks had been taken in to form the nest.

As far as I have been able to judge, it is always the male Turnstone which takes the leading part in protecting both eggs and young, as in many other species of birds. In fact, the old idea of the mother's protecting love and devotion is a myth in far more cases than people generally realise. It is more often the father who stays to be shot in his efforts to draw off attention from, or otherwise protect the young, while the female keeps carefully out of danger. In the species where this occurs the male and female are very similar in plumage, but it does not always follow that when they are alike the male takes this duty. I have specially noticed this trait in the north among Red-throated Divers, Phalaropes, Dotterel, Stints, and Purple Sandpipers.

Of fourteen nests of the Turnstone found during recent years, three were in clumps of dwarf sallow growing 6 to 10 inches high, three were under large flat stones, three upon open ground among low grass or crowberry, two on the sides of large grass mounds or tussocks, one in a Puffin hole, one under a shelf of peat, and one on the open tundra. All except the last—on Kolguev—were on comparatively small islands, and eleven were within fifty yards of high-tide. The earliest date was June 13th, and latest July 6th.

It took some time to restore our impaired circulation after the long watch of the Turnstone, and matters were not improved for the one of us who walked into a bog up to his waist. The sun had again made his circuit of the heavens without a cloud being seen; and when we turned in at 2 a.m. he was regaining his power, and making the air pleasantly warm. On both nights it had been decidedly cold from ten to nearly two, and although the light appeared almost the same to the eye, my photographs showed it was really much feebler than at mid-day. It soon became a curious

question as to when the birds, especially the Terns, slept; there was a distinct hush in the general babel for a very short period after midnight, but even then quite half the birds were on the move, and the others slept even more lightly than with the proverbial "one eye open." Those Terns I watched through my glasses never seemed to sleep for more than a minute or two at a time.

June 28th.—Photography is not all pleasure, for certain subjects must be taken in certain lights; and a Turnstone's nest demanded attention when the morning sun shone into it, in spite of the fact that breakfast was nearly ready. But virtue sometimes brings more than her usual reward, and did in this case; for on crossing a deep crack in the peat, out flew a duck showing the white alar bar and dusky black of a Velvet Scoter; and there below were the seven beautiful pinky cream-coloured eggs in a bed of sooty black down. We had crossed this piece of ground repeatedly during the previous two days, and several nests of other species were marked within a few yards. Like many other white eggs those of the Velvet Scoter lose much of their beauty after they are blown. A prolonged effort on the whistle at last drew my brother from his cooking operations; and, knowing now where to search, he soon found another nest with six eggs in a cleft between two grass tussocks. When we returned with the camera after breakfast a third Velvet Scoter rose from a nest of seven eggs in a crack five yards away from the first. All the eggs were nearly fresh; they were the first we had seen of this species.

We found three Red-necked Phalaropes' nests this morning, one with fresh eggs, one slightly incubated, and the last with down on the chicks. Near the south-east corner were sixteen to twenty Little Stints *Tringa minuta;* but they did not appear to be breeding here, although we found a nest in the evening on Little Henö. The bird rose close to our feet from this nest, and was I think the tamest of the species I ever met with. It came and sat on two eggs within easy reach of my hand, danced a grotesque little dance six inches from my feet, went off to appeal to Charles, little knowing he was

F. 44. 1 *S.* 11.15 *a.m.*

VIEW FROM CAMP OVER PECHENGA LAKE.

10-7-99.

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quite as stony-hearted; then returned and settled in the empty nest by my side, and generally tried our sympathies to the utmost. But alas! those eggs were a very handsome clutch, only slightly incubated, and the first eggs of the Little Stint we had found west of the White Sea; so they came to England! Six or eight pairs of Turnstones appeared to have nests on the low ground, but we only succeeded in finding one, as our time was limited.

Amongst the eggs found during our stay were those of Richardson's Skua, Oyster-catcher, Common Gull, White Wagtail, Dunlin, Lapland Bunting, Meadow-Pipit, Lesser and Great Black-backed Gull, Black Guillemot, and Red-throated Pipit.

A few clouds appeared in the afternoon, but nothing to interfere with the continuous sunshine. I never remember three more glorious days and nights than those we had just experienced. At night we steamed into Pechenga gulf and anchored off the Triphona river. Large arrears of egg-blowing, posting diaries, &c., kept us hard at work till 4 a.m.

June 29th.—Where Temminck's Stints are undisturbed they nest freely in the grass close to the houses, and we hoped to find that those we had seen here on the 16th had eggs now in the fields round the village, but scarcely a bird was to be seen. There were plenty of cats, however, each house seemed to possess at least one; and they explained the scarcity of Stints. Cats are an unmitigated nuisance to those who care for birds. Leaving the village, we walked up the Triphona valley; and after crossing a mile and a half of rough country, came to a lake from the lower end of which the river emerges. Five boats drawn up on the shore showed there was good fishing here during the summer. This part is narrow for some distance, with the hills coming down close on both sides; but on rounding the last bluff, the lake opens out into a fine sheet of water more than two miles long, and bordered by flat marshy land. A Whooper Swan *Cygnus musicus* flew close to us at the foot of the lake, and a few hundred yards farther on there were a pair on the water,

both calling and looking anxious; they had no nest and were only disturbed by our presence. A pair of Mergansers remained on the lake for some time within thirty yards, affording us a good view of them; and two geese which passed over twice were probably nesting in the hills near. Of nests we found four Blue-throats', two Reed-Buntings', and two Red-throated Pipits'. One of the first contained seven eggs, and was in a clump of grass on the edge of the lake, surrounded in fact by water and only two inches above its surface. I expect the water had risen since the nest was made, as it was eight inches above the usual level. We saw the first tinge of green on the birches to-day.

June 30th.—The fjord was quite lively this morning, three steamers having arrived during the night; two were mail-boats from and to Vardö, and the third had brought the Head of St. Triphon's monastery from Archangel. The consequence was that when we landed later in the day, we heard no horses could be provided to take us to the monastery until the day after to-morrow. Four or five monks were at the rest-house, dressed in high velvet caps—very like a top hat minus the brim—and long black coats reaching below their knees. All wore their hair down to their waists, producing a striking effect when first seen.

Almost all the birds had left the village, and there were comparatively few up the valley, Mealy Redpolls being the commonest. A bird of this species was sitting on a nest of six eggs, and allowed me to approach within two feet of it. After watching it a little, I took the nest and moved a few feet off to blow the eggs, when the bird at once returned and settled on the foundation left. The first egg contained a chick in down, so I carefully replaced the nest; and in a minute the bird was settled on it again as if nothing had happened. We also found a Brambling's nest with two eggs, a beautiful little structure, covered with lichen and moss outside to imitate the birch bough it was placed on, and lined chiefly with grouse feathers. The nests of this species are very similar to those of the Chaffinch, but

always look brighter and handsomer because the lichens are clean, a state in which the Chaffinch can rarely obtain them in our smoke-grimed country of England.

A hot morning had made us wish for lighter clothes; in the afternoon the weather changed, as foretold by the halo the day before, to cold fog. To add to our discomfort the boat stuck on several sandbanks during the return voyage, and we were thoroughly wetted by the waves breaking over us.

July 1st.—The halo weather continued, a dull cold day with north wind and occasional rain. After packing stores, &c., for our expedition inland, I went up the hills on the west side, over the lake visited on the 29th. A Wheatear's nest with five fresh eggs was found under some stones at an elevation of 500 feet; the nest was made of fine grass lined with plenty of feathers, chiefly those of the Willow-Grouse. As the Grouse and Ptarmigan are almost the only species which undergo a spring moult while in the north, they provide nearly all the feathers available for small birds to line their nests with. From the top of the hill (700 feet) a good view was obtained of the lake; ice still covered all but the narrow part at the bottom and a small piece at the upper end where the river entered. There were two smaller lakes higher up the valley. Snow covered most of the hills in sight, and the whole scene looked more like early spring than July.

On going down into the scrub near the lower part of the lake, I solved the mystery respecting the Temminck's Stints; there they were, nesting among quite a thick growth of birch. There were many birds about, but I only had time to find one nest, for it was an endless process to watch these little mouse-like creeping birds, where we could only see a few yards in any direction. Even when the position of the nest was known within two feet, I did not see it at first; for the spot chosen was unusual, and the four eggs harmonised so well with their surroundings. A slight hollow between two young birch stems, which only allowed room for the bird to sit comfortably, had

been lined with a few bits of grass and dead birch leaves. I had scarcely expected to find Stints nesting in a wood.

July 2nd was a day neither of us are likely to forget. Rising at seven, we landed with the last load of camping requisites at ten, expecting in our ignorance and simplicity to find the horses in the carriages, and the native we had engaged to accompany us ready. The man soon appeared, but only to tell us he could not go, as he was wanted for fishing or something. Fortunately, Ivan the Finn, from whom I had purchased the first salmon in Devkin bay, was there; and as soon as he heard we wanted a man, offered his services. He spoke Norwegian, so I engaged him at two roubles a day; and on the whole he proved a useful acquisition, for he knew the country here thoroughly, and had lived in it all his life. On a warm day it was pleasanter to walk on the windward side of him, as his last wash must have taken place in a past so remote that even he could probably not recollect it; and his clothes—well, a study of Plate 17 will give a better idea of them than pages of description! As Einar Strömsted was also going, I was obliged to ask him if he would object to occupying the same tent as Ivan, and fortunately he raised no difficulties. Then began a long wrangle between Ivan and the head-servant who had charge of the stables, as to the number of horses required and the amount to be paid for them. I was perfectly helpless, for everything had to be translated from English through Norwegian to Russian, and I am convinced that Ivan said what he chose, and not what I told Einar; for Ivan did not love the monks, and did not intend them to have too good a bargain. In spite of my repeated orders to take all the horses the servant said were wanted, and pay what he asked, Ivan continued to haggle. Two hours and a half were wasted over all these preliminaries, and my small stock of patience more than exhausted.

Plate 12 represents a group of the servants, mostly connected with the stables, some of whom acted as our drivers. The head man, who drove our carriage, is the second from the left.

At last, at 12.30, we started—one carriage, two waggons with our

F. 44. 3 *S.* 3.40 *p.m.* 8-7-99.

HUTS AT HEAD OF PECHENGA LAKE.

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luggage, and two with goods for the monastery—quite an imposing cavalcade. Our carriage had a small high perch in front for the driver, and behind it an arrangement like an Irish car with room for two on each side, but I decided to put Ivan with his many odours on a board behind, using his seat for the camera. There were no springs —none would have stood more than a few miles of that road—but the body of the carriage was secured on two long poles which took off much of the jarring, and kept the two pairs of small wheels so far apart that they were rarely in the same quagmire at once.

That was the most awful so-called road I ever saw, read of, or dreamt of; and the driver's anxiety to have light loads for his horses was amply justified. There were long stretches of peaty bog where the little wheels sank to the axles, varied by even deeper and softer holes; other parts had been patched with tree stems and branches like an American corduroy road. Steep gulleys often intervened; some with deep loose sand almost more trying to our good little horses than the bogs; others of harder material, down which the driver went at a wild gallop that shook us up like parched peas, and threatened to pitch us off many times in a minute. Experience must have taught the Russians that this form of carriage is the easiest to leave in a difficulty! Charles and I walked quite two-thirds of 25 versts, but not Ivan! his ride was paid for, and I expect he did not often enjoy one. However, I made him walk when the driver did, and when *that* happened, the carriage alone was quite enough for the horses. It is only right to say that this was just in the middle of the Russian thaw, and the road was distinctly better on our return.

At three we came to a half-way house—the only building seen on the whole road—where the man cooked us some good salmon; and as our lunch was in the first cart, long since left behind, the salmon was most acceptable. At last we reached the monastery, the six hours spent in driving 17 miles being an eloquent testimony to the condition of the road. As I propose to devote a future chapter to this

place and its history, I will only say here we were much struck with the size of the establishment, and the gorgeous decoration of the interior of the church. We were very kindly received by the monk in charge, shown over some of the buildings, and entertained with tea, &c., in the guest-house.

Several Martins were flying up and down the river here which we believed to be Sand Martins *Cotile riparia*, but shooting was not allowed, so that their species could not be positively decided.

After the horses had rested, we started again at 9 p.m., all the luggage now on one waggon, sure sign of a better road. Some six versts brought us to a winter village of the Finns, now deserted except by one man, who appeared to be Ivan's factotum, and looked after his huts and fishing during the summer. This man had spent a winter's evening "not wisely but too well" with some friends many years before, and had gone to sleep in the snow on his way home; the consequence was he had lost all his fingers and thumbs through frost-bite, and it was marvellous how much he managed to do with the small stumps remaining. Our head driver considered his contract ended at the village, for there "the road" ended, although the travelling beyond was much better than the greater part of the road we had come over during the day. With much trouble we persuaded him to take us half a mile farther, but nothing would bribe him beyond that point. So, having settled with him, we each shouldered a load; four young Russians, whom Ivan had engaged at the monastery, carried weights to which many English donkeys would have strongly objected. Ivan's man had a bundle of rags under his arm, which I learnt on inquiry were intended to stop the leaks in our boat! After marching in distinctly heavy order for a mile and a half, we came to the Buskar (a small river flowing from some lakes to the west), at its junction with the Pechenga. Here was what Ivan called a boat, but which would have answered equally well for a sieve; the upper seams showed about a quarter of an inch of daylight through them and the lower ones nearly as much. After exhausting the rags, the water still made so

F. 8. ½ *S.* 5.20 *p.m.* 7-7-99.

UPPER FALL ON PECHENGA RIVER.

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much headway, that I sent Ivan and his man up the stream for another, which he assured me was in much better condition. The others returned for the remainder of the luggage. The latter came back long before Ivan, and it was most amusing to watch those four Russians; they were just like big children, and evidently looked upon Ivan as *in loco parentis*. They were miserable at his prolonged absence, shouted or rather howled for him to return; then made a large fire as a signal, which they utilised to dry themselves. The latter they effected by stripping their shirts up, and sitting with their bare backs to the fire. I wandered off into the scrub and put a Wigeon off her nest containing six eggs; the nest was under a small heap of dead sticks twenty yards from the river, and was well lined with down.

Ivan at last returned towing a second boat, in far worse condition than the first, and which sank finally as they reached shore; the other was just kept afloat by one man baling incessantly while the other paddled. The river we had to cross was not wide, but very rapid, making it difficult to work such a leaky old flat-bottomed tub. At last a man got over safely, and we ferried the luggage across by means of a rope tied to the bow. Another mile brought us to our proposed camping-ground on the edge of Pechenga lake, and right glad we were to see it. It was 7 a.m. when we finally turned in, after twenty-four hours of hard work.

July 3rd.—Our two tents were pitched on the edge of a large moraine that formed the north side of the lake, and rose more than fifty feet above the water, so that we enjoyed a considerable view over the surrounding country. Plate 13 shows the prospect from our tent-door, looking south over the lake; it was worth the extra effort made last night to reach this place. The Pechenga enters the lake at the farthest point visible—a small white dot among the trees indicates the broken water—and leaves it on the left hand of the picture. Even this pleasant spot had its drawback; after a heavy march it seemed a long way down to the water, and the bank was very steep to mount again.

It was after 2 p.m. when we began to stir. As soon as breakfast was over, Ivan went to the head of the lake for a third boat; it was little better than the others, for all the boats are left exposed to the winter frost, which opens their seams; the last coat of wood-tar they had received was when they were built, and they only varied in their degrees of rottenness. Crossing the lake, we walked up the east bank through an open wood of birch (amongst which were scattered a few Scotch firs) to the head of the lake. Here were two wooden huts (Plate 14) and several wretched little shelters—conical heaps of birch boughs with a creep-hole on one side, where some of the poorer people pass the winter. By a liberal use of red calico and other contrivances I afterwards converted the best of the huts into a "dark room," where I successfully changed the photo-films. Leaving the lake, we walked up the west side of the river in hope of finding the other lakes shown on Rae's map. Unfortunately, Einar had remained in camp to rest after yesterday's exertions, so we could only communicate with Ivan by signs. The ground was dreadful to walk over, being almost entirely composed of large boulders like those on the hills above Lutni (see 1901), but covered here with heavy moss, so that we never knew where to tread safely. The river was a broad rapid stream with a few large pools that would have made a fisherman's heart rejoice. We afterwards learnt from Ivan there are "plenty salmon" here in latter part of July and August when he and his family come up to net them; there are also "plenty mosquitoes" then, and the condition of a nice fat tender-skinned Englishman after two or three weeks here at that time of the year would probably wring sympathy from even his bitterest enemy. Of bird-life there was none for several miles beyond a few Willow-Wrens.

We passed two small waterfalls, the upper one of which is shown in Plate 15; Ivan said salmon could get up both the falls when there was enough water. And then, it being 11 p.m., and no lakes to be seen, we decided to have lunch and turn towards camp. Just then two Velvet Scoters flew over and settled in a marsh behind;

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ROUGH-LEGGED BUZZARD'S NEST.

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as I followed them, a Woodpecker flew up, which I shot, and found it to be the three-toed species, *Picoides tridactylus*. A short search discovered a hole in a dead alder with lots of new chips underneath, but alas! when Charles climbed up to the nest he was greeted with the eager calls of a large family. In another old Woodpecker's hole near was a Redstart's nest with young. We made Ivan understand he was to take us the shortest way back, and he led us through a much more interesting country than that we had passed on our way up. This part must have been well wooded before the monks cut all the best trees down; we saw hundreds of stumps of Scotch firs 12 to 18 inches diameter. One tree had been spared on account of its divided stem; and in the fork was a Rough-legged Buzzard's nest, a bulky structure of sticks lined with fresh pine shoots, and containing three well-marked eggs (Plate 16). The only other nests found during the day were a Willow-Wren's with seven incubated eggs, a Brambling's with seven too incubated for blowing, and another with four fresh eggs. The bird belonging to the last sat on the nest while I climbed up the thin birch in which it was placed, and pecked my fingers when I tried to feel how many eggs she had.

July 4th.—We decided to visit Lake Arveden this afternoon, where Ivan had seen the Swan's nest a few years since. This entailed crossing the Buskar river at our "ferry," and the old tub sank with Einar, dropping him into a swift stream up to his waist. A rough walk of about six miles, during which we crossed two or three swamps, brought us to the lake, a larger sheet of water than that we were encamped by, and containing some useful-looking islands. On the way there we saw several Redshanks and Snipe; also, two more Three-toed Woodpeckers, whose nest we failed to find although we felt sure it was near. I shot here a Northern Marsh Tit *Parus borealis*, the only Tit seen in this district;[1] it was a female, and had well-marked incubation spots. Soon after reaching the lake it commenced to rain heavily, so that we were glad to shelter in one of Ivan's numerous huts.

[1] This Tit was wrongly described in the *Ibis*, 1899, p. 525, as *P. camtschatkensis*.

A good fire of birchwood soon warmed the old place—it had been built by his grandfather more than a hundred years ago—and brought out many ancient odours. The fireplace was formed by two large slabs of stone in one corner, and the light from the flames playing on the smoke-stained old timbers produced effects of colour that required the brush of a Rembrandt to do justice to them. Plate 17 shows the exterior of this refuge, from which it will be seen that the house (measuring 14 feet by 10 feet) was not intended to stand upright in; a broad bench occupied one side and one end, where the family sat and slept. The hut to the right in the picture—in much better repair—was filled with fishing nets and other gear. Ivan said he had seven of these residences scattered over the district at various fishing stations. I asked if he had a wife for each house, whereon he grinned and seemed to consider one was enough to be blessed with at once. His present one is his second venture on the sometimes thorny road of matrimony.

On reaching the huts, a Wheatear flew up from near a large log; so, thinking the nest was underneath, I rolled the log over, but no nest was there. An hour after, a speck of blue in a hole in the centre of the log caught my brother's eye leading to the discovery of seven eggs, none of which had been broken by their rolling.

As soon as the rain settled down to a steady drizzle we started in a leaky apology for a boat to explore the islands. The Whooper Swans were again occupying the nest Ivan had found on his former visit, a conical mound two feet high, on the extreme point of the largest island, and composed of quite a cartload of moss, &c. As it contained only two eggs, I left them till another day in hope of a better light for photographing, and further additions to the number. Both birds were near that end of the island when we first arrived, but soon went down towards the river, and we saw them no more that day.

July 5th.—As the rain still continued, we stopped in camp till 7 p.m. clearing up arrears; and then went up the west side of our own lake. The nests found were a Mealy Redpoll's, with five incubated

F. 16. 1 *S. Noon.* 6-7-99.

IVAN'S HUT

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eggs; two common Sandpipers' *Totanus hypoleucus*, each with four, one set fresh, the other with young birds formed; a Reed-Bunting's with six, incubated; and a Wigeon's with seven eggs. The Reed-Bunting's nest was in a small juniper bush on the edge of a swamp, and the bird came back within two feet of me. Mosquitoes were getting troublesome; Einar had one eye nearly closed, and we had more lumps under the skin than were pleasant.

July 6th.—We started at 10 a.m. for Swan lake, as we wanted to take some photos; this was done under difficulties, for the light was bad all day. The Swans still had only two eggs, so we brought them to land and blew them. One was addled; in the other, incubation had commenced, but the embryo came out entire, showing a delicate red tracery of the future bird with its long neck, head, and body. I never remember to have blown an egg before in exactly the same condition. Plate 18 was taken before the eggs had been touched. Ivan persisted in his opinion that Eagles had taken the other Swan's eggs, although we could not learn that he had ever seen such a thing happen. The islands here looked ideal breeding-places for ducks, and there were birds on the water, but not a nest could we find although we searched every square yard of them all carefully.

Then Ivan took us across the lake to what he at first said was an Osprey's nest *Pandion haliaëtus*, but afterwards thought it might have been an Eagle's. The nest was there certainly (see Plate 19), but it had not been occupied for at least two years, and more probably belonged to an Eagle than an Osprey, for the only remains of food below were two breast-bones of birds, one of them a duck. As will be seen from the relative sizes of my brother and the nest, the latter was an immense structure of sticks which would have filled a large cart. This plate is inserted on account of the tree. Before the monks began to rebuild Pechenga monastery, in 1886, most of this district was covered with trees of this and larger sizes, as shown by their stumps; but now only the crippled and deformed remain. However, if the trees are gone, all the wild animals are not; for

we found this morning the footprints of a large grey wolf that had followed our track home last night to within 300 yards of the tents. His marks were sharp and clear in the wet sand, and from their size he must have been a fine beast. Ivan says bears are also common here, and we certainly came across their traces many times every day, where they had been digging out the Voles *Microtus agrestis*, which were very numerous; too much so in fact, for one came into the tent and bit two or three large holes through my pyjamas!

At first we were much surprised to find this almost uninhabited country intersected by several well-worn paths, but the explanation was soon forthcoming, for each of them led from one fishing station to another, and nothing would induce Ivan to diverge from them a foot in going to the various lakes, if he could avoid it. When we insisted on striking across fresh country away from these sacred paths, he would follow sulkily, and make no effort to show us the best way. In this country where vegetation grows so slowly, very little traffic will produce well-defined tracks, and they are doubtless important to a people often obliged to traverse it in fog; so Ivan considered it our bounden duty to help to maintain them, and we did—on the homeward journey, for they always followed the easiest line of country.

The next nest was a Rough-legged Buzzard's in a Scotch fir, which contained three young in down with quills just showing. Then a Brambling's, with seven of the best marked eggs obtained this season; but just as Charles was handing down the nest, he tumbled out of the tree, missing me by six inches; and those eggs were broken. On the return journey Ivan left us to inspect the nets at another of his numerous huts. Here he found a Red-breasted Merganser in possession, sitting on seven eggs slightly incubated; he caught her and turned her out of doors, bringing us the seven eggs with the down, tied up in his pocket-handkerchief. A strange character this dirty old Ivan, with his numerous country-houses, and over a hundred reindeer now pasturing at Zip-Navolok on the Ribatchi peninsula; for although past sixty he can do quite as long a day's

F. 44. 9 *S.* 12.45 *p.m.* 6-7-99.

WHOOPER SWAN'S NEST.

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walk as we care to undertake. During part of the winter he drives the Post over the Kola district in sledges drawn by reindeer, and accompanied by four other men. After our return he went to the cluster of huts we had passed on our way here from the monastery, to see his man with the fingerless hands, and only returned at 5.30 a.m. bringing another Red-breasted Merganser's nest with fifteen eggs which he had found in one of the houses.

July 7th.—Charles found a Merganser to-day on six eggs, and she sat for some time while he stood a few feet off; but declined to stop and have her photograph taken. The nest was under a little juniper on a small island at the head of our lake. Then Ivan took us some miles up the valley to see a lake where he was sure we should find Swans; but the lake was only a wide part of the river Pechenga with two or three islets, and held no Swans. On the way up we met a family party of Hawk-Owls *Surnia ulula*, one of which I shot, a fact that caused very little concern to his relatives, who remained near us for some time. Owls' claws are sharp, and it is well to bear that in mind when dealing with wounded ones! All the Fieldfares seen to-day had young, while most of the eggs of the smaller birds, such as Redpoll, Wheatear, Willow-Wren, and Brambling, were much incubated. We put up two hen Capercaillie *Tetrao urogallus* near the path when returning, the first and last seen here.

July 8th.—As some kinds of food were running low, I sent the men to the monastery for a further supply. They were three hours going there; and returned in the evening with four pints of milk, one pound of butter, seven small loaves of bread, some tea and sugar, and a small salmon; total cost, 4 roubles 15 copecks. An Englishman had been to the monastery yesterday who had walked across from the Voriema (Jacob) river. He could speak no language they understood; so took some photos and returned to Norway. We were sorry not to have seen him. I had told Ivan to bring some beer or spirits, but the monks would let him have neither; and so we were reduced to tea before the end of our stay.

A Whimbrel and a Golden Plover wasted a good deal of our time; we could make nothing out respecting their nests. The eggs of a Red-throated Pipit, Meadow-Pipit, and White Wagtail were all on the point of hatching. We saw an Osprey here to-day for the first time; it was fishing over the upper part of the lake. The eggs of this bird were one of the chief desiderata of our visit. The weather was splendid, with sun shining both day and night; yet there was a sharp hoar frost after midnight in the shade, and the fall in temperature caused heavy mists to form over the lake and river.

July 9th.—Plate 20 is a picture of reindeer-moss, the principal food of the animal which figures so largely in accounts of arctic travel; it was particularly luxuriant near our camp. The colour is a light greenish sulphur-yellow.

To-day Ivan took us to a lake lying to the S.E., where he thought we might find the Osprey nesting, but we saw no trace of the bird there. The lake was a large sheet of water about two miles long, and somewhat of the same shape as that we had seen on the Triphona river, June 29th. The land sloped up from it gently on three sides, covered with birch and a few scattered pines, but there were broad strips of marshy ground running down through the woods, which gave the effect—often to be seen in our English parks—of having been cleared to afford a view of the lake and hills beyond. Ivan explained to-day the Finns do not like Ospreys, and do what they can to drive them out of the country by cutting down the trees they select to build in; all because they eat a few fish! As the only birds we saw here were a Black-throated Diver, a Common Gull, and a few Arctic Terns, we soon struck up to some hills. After passing the tree-line we found a nest of the Meadow-Pipit with six eggs, and one of a Rough-legged Buzzard on a steep hillside, but as the chick in the one egg could be heard calling when we were twelve yards off, we left the only child in its fond parent's care. A little farther on, an Eagle rose from some rocks, whereupon two Buffon's Skuas and a Tern went for him in a style that was indicative of some precious treasures close to.

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EAGLE'S (♀) NEST.

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When a bird of prey is not hungry he will stand these attentions in a marvellous manner, generally beating a retreat; when he is empty they often end in disaster. We thought the bird was a young White-tailed Eagle. The Tern had young, and the Skuas two eggs nearly hatched.

The trail showed that a large wolf had passed near the camp soon after Ivan and Einar left yesterday, and appeared to have followed them part of the way to the monastery. I am sure some readers will ask why we did not go to look for those wolves, instead of wasting so much time over birds. Well, we had no dogs, and only 16-bore guns; so we left them to come and look for us! of which there was little chance in the middle of summer.

July 10th.—To-day we went to some hills visible in the distance from camp. Of course Ivan took us on a path, but after a mile or two of it we rebelled and struck up through the woods, much to his disgust; however, the mosquitoes avenged him, for they were *bad* to-day, especially in the damp parts. Charles saw a little dusky mouse-coloured bird here with some white, which he thought was a Pied Flycatcher *Muscicapa atricapilla*, but he could not get a shot at it; he said it was catching flies like a Flycatcher.

Above the tree-line we added two new birds for this district, viz., the Dotterel and Shore-Lark. The eggs of the former, shown on Plate 21, were so much incubated that when the drill went in the beak came out through the shell. Still, the bird was wild and took forty-five minutes to settle; there were mosquitoes up on the hills also, even at this elevation of 850 feet! Another Dotterel was brooding three young on the same hill. The male Shore-Lark had his beak full of insects, so probably had young; his "horns" were very distinct as he stood watching us. Two pairs of Buffon's Skuas on these hills had eggs, both clutches being nearly ready to hatch. The nests were on dry peaty ground between 600 and 700 feet above sea level, and were lined with a little lichen. We also found two nests of Wheatears here, both under stones; the first contained five young, and the second

three young and two eggs. Under the same stone as the first, and within a foot of it, was last year's old nest. Some Red-throated and Meadow-Pipits' eggs were nearly hatched.

Then we went down to a long narrow lake which forms the head waters of the Buskar river; there were several small islets, but no water fowl about, although we searched carefully with glasses from a distance when we first sighted the lake. A Rough-legged Buzzard had five young in a large dead fir, and stooped at my brother several times when he was at the nest, coming within five or six feet of his head. We had never seen this species make any attempt to defend its young or eggs before. The eldest of the family took after its parent, striking at Charles repeatedly with his claws.

After dinner Einar rowed me to the head of the lake to change films. Before landing I caught two trout about 14 inches long with an artificial minnow; long, thin, dark, ugly beasts with many spots (some of them red), and they tasted no better than they looked.

July 11th.—A horrid day! without one redeeming feature, except our morning dip in the tarn behind the tents. We had soon deserted the large lake for this tarn, for while both were shallow near the bank, the bed of the former was made of boulders, while the latter was of sand. Ivan had gone to the monastery after breakfast to arrange for men and horses to take our tents, &c., back to the ship the next day; while we, accompanied by Einar, went to the head of the lake and the country beyond on the west side of the river. The day was warm and close, and those sweet little creatures, the mosquitoes, were out in their thousands thirsting for blood. All travellers whom I have met, with experience of both arctic and tropical mosquitoes, give the palm to the arctic variety; and it is indeed a mercy it does not appear to transmit any germs beyond its own venom. After wandering for some hours through the woods with no result beyond being bitten into a state of fever, we made for the hills, the one idea in all minds being to start a "smudge" (great smoke and little fire) at the earliest possible moment.

F. 44. 3 *S.* 12.15 *p.m.*

REINDEER MOSS.

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Who lit that smudge this history shall not repeat. Suffice it to say he lit a handful of reindeer-moss on other moss, and not on a stone. In less than a minute some yards were burning; and we, standing in the smoke, gloried in the death of hundreds of our tormentors. But there was a breeze! and that patch of fire was very quickly twenty yards across. Then we realised the thing was serious; and, cutting down young birch, beat and trampled on the fire for more than an hour. Hot work, for many bushes had by this time been included in the conflagration. At last it appeared to be completely subdued, and only a little smoke rose from a few patches; so we went to the next hill to cool our parched mouths with snow, for there was no water near. The little wretches seemed, if possible, more active on the hill tops than in the valleys, swarming up in clouds out of the reindeer-moss, in spite of the breeze blowing there; so at last we turned for home in despair. Einar's head was swollen to nearly twice its natural size, and all our tempers were in such a state that a wise person would have postponed asking a favour.

July 12th.—While we were busy packing after breakfast, Einar called our attention to the fact that the whole country where we had been yesterday was becoming covered with dense clouds of smoke! A strong wind had sprung up early this morning, and I suppose had fanned some sparks smouldering in the peat into a flame again. We at first thought of going to try and put the fire out, but it was clear that with the nearest water a mile away three men could do nothing to extinguish a fire that filled a quarter of the horizon with smoke. When Ivan appeared on the scene he looked very like a madman, for he seemed to think we had set the country (which he looked upon as his own) on fire on purpose. This roused Einar, and I think he somewhat painted what I had to say to Ivan on the subject. A stormy ending to the expedition!

On reaching the monastery I had an interview with the Archimandrite, whom we had not seen on our previous visit; a man about 5 feet 11 inches high, dressed in a black cassock, and a high, round,

velvet cap with flat crown, a crucifix on his chest suspended by a chain, and a small medal attached to a red ribbon; a fine face, clearly showing ability of no mean order—in fact, a man in the best sense of the word. Most unfortunately he only spoke Russian and Finnish, so the conversation had to be carried on through Einar and Ivan; and I much doubted whether the latter correctly interpreted all I said. The Father's greeting was not warm; but I had a letter from the Russian Minister of the Interior, and this, combined with an explanation of how the fire arose, smoothed matters considerably. He explained the fire was on Government property, not that of the monastery. I afterwards learned that a monk had dropped a match last year after lighting a cigarette, which had resulted in a large area of the Imperial Forest—or rather birch scrub—being burnt, with a loss to the monastery of some hundreds of roubles. The results of this fire were still visible on our road to the lake. The fact is, a light might almost as well be placed among loose gunpowder as in reindeer-moss when it is really dry. The interview closed with an invitation to have some refreshment in the guest-house; tea, cold salmon in jelly, and delicious brown bread; but tea was the only thing we really cared for after yesterday's torments, for we were still too feverish for food. I had the pleasure of again meeting this gentleman in 1903 on the Russian mail-steamer, when he presented me with his portrait, which is reproduced on Plate 63.

Our troubles were not over yet, however. On reaching the sea coast, I had to interview the Police Superintendent or some similar official, and he wanted to detain us until he knew the amount of damage the fire had caused, information which, he explained, would require at least five or six days to obtain. If it was a bad fire, then he must take a number of men and cut trenches round it to stop its spreading through the peat. Again that letter of the Minister of the Interior did us good service; and at last I wrung from him permission to depart. I was really sorry though for the poor fellow; the conflict in his mind as to whether he was going to get into most

F. 44. 6 *S.* 5.0 *p.m.*

DOTTEREL'S NEST

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trouble by letting us go or making us stay so upset him that great beads of perspiration stood on his forehead. Fortunately, on our arrival at Vardö I found M. V. Beresnikoff, the Russian Consul-General for North Norway, there, with whom we had travelled north from Throndhjem; and he undertook at once most kindly to have a short account I had written, explaining the origin of the fire, translated into Russian, copies to be sent to the Father Superior and the Head of the Woods and Forests Department. A few weeks after my return to England, I received a letter from M. Beresnikoff saying the damage caused by the fire had been assessed at 9 roubles, 85 copecks, less than a pound. A happy ending to what at one time threatened to be a very disagreeable incident; and due largely, no doubt, to a heavy storm of rain we saw falling over the district as we left the monastery.

July 13th.—On our way to Vardö we stopped at Great Henö for a couple of hours to have a last look at the island. We were much surprised to find the whole of the Terns had left; it seemed scarcely possible that all the young had been hatched and had flown since the 28th ult., when there were large numbers of fresh eggs, and no young in down to be seen. The only alternative explanation is that their eggs had been collected wholesale after we left, and the birds had given up the attempt to breed this year.

The island had now assumed its summer garb; large masses of marsh marigold round the lake reached up to our knees, while acres of drier land were covered with the beautiful yellow Trollius, a small piece of which is illustrated on Plate 22. Flowers of tall habit are most difficult to photograph in the north; when it is fine and sunny there is almost invariably wind, which keeps them in constant motion. A clear day without wind comes perhaps once in the season, and then probably there are no flowers near to photograph!

Ferns grew plentifully in the damper hollows, and the Angelica had reoccupied all its ground with rank luxuriant foliage that came up to our waists. But when it is realised what a heavy dressing

of fish-manure the peat of the island receives every year, it is not surprising vegetation should be so profuse. A few Eiders and a pair of Richardson's Skuas had eggs—probably birds whose first nests had been robbed; but the young of most species were now about in various stages of development. All the Little Stints seen on the 28th had left; it is possible these were non-breeding birds. Of course our examination of the island in the two hours ashore to-day was hurried, and confined to the S.E. portion; for sorry as we were to leave this interesting spot with its thirty-eight species of birds, many of them so abundantly represented, the ropes were drawing us home, as sailors say, and we were anxious to catch a steamer at Tromsö that would enable us to sail for England on the 22nd by the s.s. *Eldorado*.

After a pleasant but uneventful voyage along the Norwegian coast, we left our little steamer at Tromsö, re-crossed the Arctic Circle July 18th—having crossed it going north May 17th—and arrived in England on the 24th. It is scarcely possible that any one following in our footsteps can light on such an equally unfortunate season; and there is therefore reason to hope that others will reap a richer harvest in a normal year. Still we had met with seventy-six species of birds, and found eggs of forty-four of them. And we had enjoyed a most interesting time among visitors to Great Britain in their summer homes, for only five of these seventy-six species are not included in the British list. It is this last fact which adds so largely to the charm of an ornithological ramble in the lands of Northern Europe, lands which have an irresistible attraction for those who have once known them, with their continuous daylight and invigorating *clean* atmosphere, where letters, telegrams, and evening papers cease to trouble, although there are MOSQUITOES.

F. 11. ½ S. 3.0 *p.m.*

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TROLLIUS EUROPŒUS.

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CHAPTER II

1901

A MAN leaving the coasts of Northern Russia, his body well bitten by mosquitoes and his mind full of the hundred-and-one little annoyances inseparable from all travel, may vow he will never venture there again, but in six months all the troubles are forgotten, only the recollection of some of those glorious days spent within the Arctic Circle, which no other region of the world can give, remains; and when the spring returns he is as restless to be off once more as the birds are to return to their northern homes. So 1901 found me again steaming up the Norwegian coast accompanied by my son, Hetley Pearson.

In searching the map for new ground to work, which could be reached without the expense of chartering a large ship like the *Laura*, Kanin peninsula presented itself as a desirable spot. Rae had told us nothing about the birds he found in this country when he visited it in 1873, so that it remained virgin soil as far as they were concerned. Kanin was, therefore, decided upon as the chief aim of our expedition this year.

Kanin peninsula extends some 130 miles to the north from the Russian mainland, and forms the eastern shore of the White Sea. Trees appear to reach their northern limit of growth in the neighbourhood of the Nes river, thirty-five miles to the south of Cape Konushin, and the scrub growing beyond this part affords little wood large enough to be of service for fuel; but the sea supplements the scanty supply afforded by the land with stores of driftwood far in excess of

the requirements of the inhabitants. The southern part of the peninsula consists of low-lying tundra and marshes interspersed with numbers of lakes and tarns. At the narrowest part of the peninsula, south of Cape Konushin, boats could at one time proceed up the Chizha river to Lake Oboodna and thence down the Chesha river into Cheshskaya bay on the east coast, a distance of twenty-five miles; but this is now impracticable, as the upper waters have silted up and become a marsh. In a collection of Voyages published in 1694 by Samuel Smith and Benjamin Walford, there is a chart of the Polar Regions as then known, in which a wide channel is depicted between the White Sea and Cheshskaya bay, where these rivers now run, thus making Kanin into an island. Although the chart shows considerable knowledge of the White Sea district, I do not advance this as a proof of how much the land has risen here since the seventeenth century! It is rather probably a curious instance of a much more ancient state of things having been accidentally recorded. The country gradually rises north of the Kiya river, and culminates in a range of hills 400 to 500 feet high occupying most of the northern part of the peninsula. The Samoyeds migrate with their reindeer to these hills every summer to avoid the mosquitoes, which are then unbearable in the marshy lowlands. There are no reliable charts of these coasts; rocks and shoals—often miles from land—cause all ships to give them a wide berth, and the ice rarely leaves them before midsummer.

We left England May 9th, and after a quiet voyage over the North Sea—marred only by occasional performances on the fog-horn—reached Stavanger on the 11th and Throndhjem on the 13th. Here we were detained two days as usual, for Wilson's boats do not correspond with those for the north, so that it was the 19th before we arrived at Tromsö. We found the little *Expres* waiting for us, with Captain Hansen again in command. But all was not bright, for the season, although not so dreadful as 1899, was a bad one, and the hills were covered with snow down to the sea. The woods in Tromsdalen were difficult to walk in, having more than a foot of snow on

F. 6. $\frac{1}{100}$ *S.* 5.15 *p.m.*

REINDEER ON KILDIN ISLAND.

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the ground. Hooded Crows had eggs (6–5), and a Merlin had taken possession of another of their nests, but had not laid yet.

After completing our stores we left Tromsö on the 20th and called at some islands where I had taken red eggs of the Herring Gull in 1896. Here I obtained another very handsome red clutch, still unblown, which the proprietor of the islands had just taken from the nest. I believe these to be the third clutch now in my collection from the same pair of birds. Those taken in 1895 and 1896 are alike in colour, and in having one egg of a much deeper tone than the others. The eggs of 1901 are a little lighter red than the previous ones.

After a somewhat rough and disagreeable voyage we arrived at Vardö late on the 24th. The next morning we woke to find a fierce N.W. gale blowing, with constant snowstorms. Most of the ships crews were busy putting out extra stay-ropes to prevent collisions and other damage. We heard that no ships had yet been able to reach Archangel, as the ice was late in breaking up this year. Snow-Buntings were still in flocks here; only one pair looked like commencing to build. Many Shore-Larks were feeding on the manure heaps and other spots free from snow; a few Meadow-Pipits and one White Wagtail had also arrived.

On the 26th the gale and snowstorms continued, the former so severe one steamer broke from her moorings. A mature Glaucous Gull *Larus Glaucus* settled on the water close to the *Expres*, the first of this species I remember to have positively identified at Vardö.

May 27th, Whit Monday.—All the shops in Vardö were closed except the chemists', and the day was observed as a general holiday. It is quite as hopeless to expect any work to be done in Norway on such days as it is in England. We noticed a large steady stream of people making for the church, and learnt that the minister was to preach his farewell sermon, after twenty years' service here. As he is over eighty years of age, he is retiring on a pension.

The storm seemed to have exhausted itself, so we left Vardö soon

after one, and made a good quick passage of four and a half hours to the island of Henö; for although there was a considerable swell remaining from yesterday, the wind was astern. I shot two Pomatorhine Skuas *Stercorarius pomatorhinus* on the way; the first a handsome male in adult plumage, with twisted tail; the second was an immature female, with much more colour on the breast and a short tail. Several others were about the ship most of the time, and also Fulmars *Fulmarus glacialis*, Kittiwakes, Puffins, &c.

We landed in the small bay on the south side of Henö—the same place as in 1899—with some difficulty, on account of the swell, and were at once confronted by a new wooden house, erected since our last visit. However to our relief, it was empty, and the birds had become accustomed to its presence. Probably it has been built by the monks of Saint Triphon's for the use of their people while gathering the crop of multebær (cloudberry, *Rubus chamæmorus*); and it certainly proved a useful shelter during some heavy showers of rain on our later visits. We found the island covered with two or three inches of snow; but it had recently fallen, and there were no heavy drifts as on May 31, 1899, nor did the ground appear to be so hard frozen. Some forty or fifty Purple Sandpipers were feeding on the beach where we landed. The pool by the old camp was much reduced in size, and what little water it contained was covered with ice; the large lake was open, however, and on it were a number of Common Eider, a few Velvet Scoter and Common Scoter *Œdemia nigra*, a pair of Long-tailed Duck, and many other birds we could not identify, for the light was bad, and they were so wild that they had evidently been considerably disturbed. Some of the Puffins had arrived and had visited their burrows, as we saw many marks on the snow where they had entered them. Still not more than a tenth of the full summer population had put in an appearance yet. A Raven left for the mainland as soon as he saw us, probably one of the pair nesting in Andarnaia fjord in 1899, which make this island their chief hunting-ground. We saw a few Snow-Buntings and Lapland

F. 44. 8 S. 11.55 *a.m.*

S.S. "EXPRES" IN THE UKANSKOE RIVER.

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Buntings, the latter all males; also some Meadow-Pipits, several pairs of Oyster-catchers, one Turnstone, and one Dunlin. The advanced guard of the Arctic Terns were in flocks on the shore, most of them resting on the seaweed-covered rocks. Three or four pairs of Great Black-backed and Herring Gulls had come; Common Gulls were more numerous. The only nests we found were about a dozen Eiders', some of them with six eggs, two Oyster-catchers', each with three, and three Common Gulls, 3–1–1. Evidently there was nothing to stay for at present, and after walking for two or three hours over the east half of the island, we rejoined the steamer with one prominent idea, namely dinner. But alas! that was not to be that night, for the roll was so bad we were only able to put things safe in the cabin and then lie down. Kjeldsen woke me at 1 a.m.—his beard full of snow —to say the fog was so bad we could not make the harbour of Zip-Navolok at the N.E. corner of the Ribatchi peninsula, where Captain Hansen had intended to anchor till the weather improved. This entailed lying-to for an hour in that swell, not a pleasant time! Then the fog lifted a little and we were soon after at anchor and at rest.

May 28th.—We left Zip-Navolok at noon, and had a rough passage down the coast to Kildin island; here I decided to stay and wait for a change in the wind. Kildin island lies in about the centre of the Murman coast of Russian Lapland; and is ten miles long by three and a-half miles in its widest part. The Sound separating it from the mainland varies in width from two miles to little more than half a mile, and is generally very deep, so that there is only anchorage near the shore. Far the best anchorage, in fact the only safe one, is in a bay at the S.E. end of the island, called Monastery bay, from a fortified monastery having been there at one time. This was destroyed by the English in 1809, and no trace of it remains. On its site stands the one house now existing on the island, and inhabited by a Norwegian, of whom more anon. There is an abundant supply of good water to be obtained from a shallow well a short distance from the house. The geological formation of Kildin varies in a marked degree from that of

the mainland on the opposite side of the Sound; for while the latter is chiefly composed of granite, the former is of a dark coloured schist, bedded in nearly horizontal layers, what slight tilt there is being towards the mainland. This stratification is clearly shown in Plate 43. The greater part of the outer coast-line consists of cliffs rising 500 to 600 feet above the sea; but a landing can be effected on most of that bordering the Sound where the ground rises in four terraces towards the interior. A few patches of sallow and dwarf birch three to four feet high may be found growing on the southern slopes and valleys; but otherwise the island is destitute of trees or bushes. The interior is a high tableland consisting of rounded hills, some of them rising to 800 and 1000 feet, scantily covered with reindeer-moss, lichen, and the creeping birch; and broad valleys between clothed with a certain amount of coarse grass, lichen, &c., very difficult to describe as herbage from an English point of view. Yet the island supports large herds of reindeer, in charge of whom were a few Lapps living in wretched little tents near the shore. Both hills and valleys are plentifully sprinkled with erratics of all sizes, many of them of granite. The only low land on the island is to be found at the south-east end, and forms one side of the bay and harbour. It consists of an interesting series of raised beaches, their edges formed of great masses of water-worn boulders, stretching sometimes for more than half a mile. Parts of the lower land are covered with something which may be almost called "grass," but this is largely due to the energy and care of the Norwegian and his sons who have manured it for years, thus obtaining a supply of hay for their twelve cows during the winter. The man also owns a number of the reindeer which we saw on the higher land.

On an Admiralty chart is shown a large lake described in the *Arctic Pilot*, p. 87, as over a mile long, and two-thirds of a mile wide. I walked miles to find that lake. On May 28th we found no trace of lake or tarn in the interior, but I have now no doubt we walked over the latter on the snow without knowing it. On June 29th

F. 22. 1 *S.* 2.35 *p.m.*

VILLAGE OF LUTNI, UKANSKOE RIVER.

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we again started inland to search for the lake without success, but we did find three sheets of water varying in size from a tarn to a small lake and lying nearly on the same level, in about the position where the lake is shown on the chart. I can only suppose that the person who described that lake had visited the island just after a heavy spring thaw when a flood had joined the three lakes into one. I heard afterwards that the Russians had also endeavoured to find the lake, but without success.

Hetley had considerable arrears of skinning to make up, so I landed with two of the men. A few Herring and Great Black-backed Gulls, Terns, and an Oyster-catcher were on the shore, while some twenty or thirty Snow-Buntings were flying about the face of one of the terraces apparently pairing; but not another bird did we see during our walk. We climbed up slope after slope, crossing much recent snowdrift in which we sank above our knees, and making towards the N.W. where the island is widest. At last we reached an elevation of nearly 1000 feet which gave an extended view over a considerable stretch of country. Where the wind had swept the ridges clear of snow the stones were thickly coated with ice. The whole presented the most desolate winter picture, and this on May 28th! The only relieving feature was a herd of tame reindeer on the upper fells who allowed me to photograph them at a distance of fifty yards (Plate 23). This was done with half the lens so that they appear considerably nearer. Only three retained last year's horns, probably females. The principal bulls had new horns half grown, and the others were in various stages of lesser development. Several snowstorms passed over during our walk, and gave splendid cloud effects over the sea and mainland.

Four of the crew paid a visit to the Norwegians after our return, and were told that no geese breed here, they only visit the island on migration; but I think from what I afterwards saw that a few come across from the mainland to feed during the summer.

May 29th.—As there was a high N.W. wind all day with showers of

sleet and snow I decided to remain at anchor. We landed after lunch to investigate the low ground at the S.E. end of the island. When passing the house I noticed a large quantity of black meat hanging up, and learnt it was dried seal's flesh, preserved for sale to the Russian seamen. Most of the Norwegians will not eat it even when fresh, although in 1897 we found it palatable, much better than either Guillemot or Long-tailed Ducks. The family had caught 208 seals here in nets during the winter; and the remains of these carcasses still proved an attraction to the Gulls. A number of Shore-Larks were feeding on the manure heaps behind the house; and we saw several other small flocks near the shore. A pair of White Wagtails were also near the house. When we reached the coast we came upon one of the wildest winter scenes imaginable; great snowdrifts twenty or thirty feet thick lay in the lea of the bluffs and hills; the level ground also covered with snow except where the gales had swept it clear; the sea cliff over hundreds of feet of its surface a mass of icicles; while below the swell produced by the northern gale rolled in great waves on to the beach. Very fine, but we had come to see birds and their nests, not icicles. During our walk we noted a Raven and two Shags, Long-tailed Ducks and Common Eiders, also some Meadow-Pipits. A flock of some hundreds of Waders—very wild—were wheeling over the sea; I believe they were Dunlins, and I shot one of that species on the shore. It began to snow again directly after we returned on board and continued most of the evening.

May 30*th.*—I had gone on shore after breakfast to take some photographs, when a Russian steamer came into the bay and at once sent a boat to the *Expres.* Soon after, the steam whistle sounded to recall me. Going on board I found two head officials of the police awaiting me, and desiring an explanation of our presence there. However, the letters that Governor Engelhardt had so kindly furnished me with at once put all in order; and we had a very pleasant hour's chat, Kjeldsen acting as interpreter. One officer took considerable interest in birds, and said he had many stuffed at his home in Ekaterina; also

F. 8. 1/5 S. 2.30. p.m.

INHABITANTS OF LUTNI.

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a record of eggs, kept by himself, his father, and his grandfather. It is on occasions like this that a little cherry-brandy, preserved fruit, &c., are useful.

As the wind seemed to have lessened, we left soon after 3 p.m. (Kildin time is 2 h. 17 m. 26 s. fast of Greenwich), but as soon as we were clear from the shelter of the island the vessel rolled and tossed so much we were only able to cook some soup for dinner and that with great difficulty. There was more snow in the evening; the sea however went down at night, and when I went on deck at 4 a.m. the morning was beautiful, with every promise of better weather.

May 31*st.*—As our old anchorage of 1895 behind Sviatoi Nos was the nearest good harbour on this coast to Kanin Nos, I decided to go there until the weather appeared favourable for crossing the White Sea; and we dropped anchor behind Medveji island (so spelt on the Admiralty chart, but Medvyezhi in the *Arctic Pilot*, 1898, published by the Admiralty) at 10.20 a.m., after a run of nineteen hours from Kildin island. Local time here is 2 h. 40 m. (within a few seconds) fast of Greenwich. This proved to be the first fine day since we left Tromsö on the 20th, free from snow or rain, and a bright sun throughout, making it really hot for walking. We landed on the island after breakfast and spent some hours in exploring it, but found very few birds compared with those seen during our visit on June 21, 1895. Not a twentieth part of the Black Guillemots had arrived yet, and there was no sign of their having commenced to lay their eggs. A few Great Black-backed, Herring, Common, and three Glaucous Gulls were about the north end of the island. We also saw two Richardson's Skuas, two or three White Wagtails and Meadow-Pipits; and a few Cormorants, Eiders and Long-tailed Ducks on the sea. A pair of Ravens had a nest on a cliff over the sea, containing two young whose wing-feathers were just showing, the rest of their bodies having only down on. On June 6th—only six days after—these birds had their bodies covered with feathers; young birds, large and small, mature with wonderful rapidity in the north. The whole island had

evidently been under snow within the last few days, but it was now quickly becoming clear in all but the most sheltered places. The only eggs found were eight Gulls', of which the Great Black-backs' were too incubated for blowing. All the birds were very wild, for three small Russian vessels were anchored in the straits, whose crews appeared to be firing at everything that came within shot; and a party of them landed with guns just before we left.

After lunch we landed on the promontory which terminates in Korovi point and divides the Ukanskoe river (Yukanka in *Arctic Pilot*, 1898) from Svyatonoskaya or Yukan bay; and soon found the ravine where the Rough-legged Buzzards nested in 1895, but there were none here now. We climbed up to the top of the ridge and walked along it until we were nearly opposite the village of Lutni; a wild desolate country covered with erratics of all sizes. The only signs of life were a few Snow-Buntings, some tame reindeer, and the track of a hare. The day being clear, we had a good view of Sviatoi Nos, its lighthouse, and the four small red-roofed houses for its keepers.

June 1st.—Captain Hansen had been very unwilling yesterday to entertain the idea of taking the *Expres* up the river to Lutni; but I explained that the *Saxon* had been there twice in 1895, and there was no necessity for him to go above the village in search of the rock we grounded on then, also that the distance from Medveji island to Lutni was too great for the crew to row us every day, sometimes against a heavy stream and tide. So he screwed up his courage this morning and moved the ship up at high tide (6 a.m.) to a little below the point where our camp was pitched in 1895. I landed and went up to the old camping-ground; the trenches we had cut round the tents were almost as distinct as when we left them. Plate 24 shows the state of the country on the first day of "Summer." The ice-floes in the foreground are two feet thick, and are the remains of the winter's covering over this part of the river. The spring tides here rise more than fourteen feet. A few Redwings were singing in the birch-scrub, and one or two White Wagtails were about the shore. After lunch we

F. 32. 6 *S.* 4.35 *p.m.* 3-6-01.

RAVINE NEAR LUTNI.

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went across the river to Lutni. The spelling of this name has been altered to Lyetni in the last edition of the *Arctic Pilot*, while Herr Holmboe, Russian Vice-Consul at Vardö, renders it Litza. There is a delightful uncertainty about the English spelling of Russian names, just as there was respecting English spelling itself a hundred or more years ago, and when the authorities cannot agree, an Englishman may take his choice, and set his critics at defiance. I have generally followed the spelling adopted by Governor Engelhardt in "A Russian Province of the North," and that on the Admiralty charts, as the latter had been used in the article in the *Ibis*, 1899, but the later readings of names in the *Arctic Pilot* are also given for convenience of reference.

We found the bulk of the summer inhabitants of Lutni had come, although small parties continued to arrive for some days. Some of the women were busy with the occupation so dear to females over most of the known world, and equally hated by men—spring cleaning! What a volume those two words convey to the poor masculine mind; books, papers, &c., lost for weeks, perhaps months. Here at Lutni it was carried out in a most thorough manner, for everything movable was turned out of doors while the rooms were scrubbed and washed. Perhaps the size of the houses—see Plate 25—was a reasonable excuse for these drastic measures; still I doubt if any of the men in Plate 26 were just then undergoing the infliction—they looked too placid. The women's dresses were mostly of bright coloured cotton prints, and their headgear of cloth profusely ornamented with beads. The majority of the men and women are quite as clean in their persons and houses as those in a similar position of life in England; but it needs a Russian spring with its floods of melted snow and rain to cleanse the surroundings. I am speaking now of the Pomors; most Lapps and Samoyeds would be considerably improved by a more liberal use of soap and water.

After taking some photographs, and watching two Martins which kept well out of shot and so prevented our identifying the species (I think they were House-Martins), we started for Lake Ukanskoe (now

spelt Yukanskoe in the *Arctic Pilot*), going up the valley, and thus making the same mistake as in 1895, the result of not previously reading up my old diary. This track leads on to the hills considerably to the left of the lake; the direct route is over the hill on the right side of the village when looking up the valley, and is a fairly well-marked path most of the way. The first lake we came to—a mile from Lutni and in the same valley—was clear from ice, and had a pair of Red-throated Divers on it; but all the other small lakes we passed were still frozen over, and some bore marks where sledges had recently crossed. Two pairs and a single Dotterel were on the hills, so this species had commenced to return to its breeding-ground. Lake Ukanskoe and its surroundings showed little signs of summer yet, although this was the first day of that season, for much of the country was covered with snowdrifts, and all the lake below the islands was under ice except a small patch where the river leaves it. The upper river had broken up a week or more before the date of our arrival, and had piled its banks high with great blocks of ice eighteen inches to two feet thick; the remainder had been carried down to the upper part of the lake, where it lay heaped up on the islands and the lake-ice. Both the islands and the shore line showed the water had been five feet higher than its present level, during the early part of the thaw.

In 1895 the hillside above the lake had been clothed with a beautiful birch-wood, many of the trees fourteen to sixteen feet high, the largest trees we saw in this part of the country. Now most of these were gone, cut down for firewood when the snow was here, as shown by the height of the stumps. This question of fuel must become pressing in some parts of the country during the next fifteen or twenty years. I noticed a marked diminution in the quantity available since our last visit, and I am sure it is being cut down much more quickly than Nature replaces it.

Two Ravens and a Rough-legged Buzzard were hunting round the lake. A few Redwings had come, and a White Wagtail sat near us

F. 44. 4 *S.* 1.55 *p.m.*

4-6-01.

FAMILY SLEDGE, LUTNI

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most of the time we had lunch. I thought I saw a pair of Mealy Redpolls, and a small Wader flew over one of the islands, but too far off for identification. Several Geese and Divers passed over. We put up six or eight Willow-Grouse, chiefly males; and a hen Ptarmigan rose close to me, but had no nest. Two white hares were also seen, both very wild. Not much to record as the result of an eight hours' walk! a tiring one too, for at least five hours of it were against a strong head wind, and a good deal of heavy snow had to be crossed.

One thing, however, the walk had made clear, viz., that little as there was to keep us in a country we had already worked fairly well in 1895, we had much better stay where we were for the present, as if the season was so backward here, it was sure to be worse on the east side of the White Sea. Here we were in a thoroughly safe harbour—the only good one for a hundred miles either up or down the coast, while on the other side there was no harbour.

June 2nd.—A slight snowstorm in morning, and it continued dull and cold most of the day. Two boatloads of men from the village came on board to barter skins, caps, &c., with the crew. Hansen had obtained nearly half a reindeer yesterday for a bucketful of biscuit. Several of the men seemed to have plenty of roubles and anxious to buy things for money, but when they were asked to sell, the price was out of all proportion to the value, at least from our point of view. The men told us there was no probability of finding Geese eggs for another fortnight, as they did not lay till all the ice on Lake Ukanskoe had gone.

In the afternoon I went up to the lake above the old camp, from an island on which Mr. Slater took a clutch of Black-throated Divers' eggs on June 26, 1895. On the open water, which extended over half its area, were three birds of this species swimming about in close proximity; and I saw all three together on several occasions afterwards, but never observed any fights for preference, like those between Great Northern Divers in Iceland. Possibly in this case two were females. At any rate I am certain there was only one nest after-

wards, for we searched every yard of the shore. A pair of Golden Plovers and another of Buffon's Skuas were near the lake, but neither showed signs of having selected a nesting site yet. There appeared to be a few more birds in the birch-scrub near the river; I only identified Redwings and Meadow-Pipits.

June 3rd.—It being a beautifully bright morning we decided to visit the gorge Feilden and I had been to on June 26, 1895, and started at 10 a.m. accompanied by Kjeldsen and Thomas. Warned by the experience of the previous expedition we kept below the stones and above the birch-scrub, thus securing a much more comfortable country to walk over. For the first mile or two the hills were covered with reindeer tethered by long ropes to the erratics; the deer careered wildly in all directions, requiring a little care on our part at times to avoid their ropes. Not much chance of birds nesting in their neighbourhood! I shot a male Wood-Sandpiper *Totanus glareola* on the fell at an elevation of 450 ft., the first we had seen this season. On reaching the ravine at 1.30 p.m. we could find no trace of the Gyr-Falcons *Falco gyrfalco*, and although Hetley saw a Rough-legged Buzzard, neither species was nesting here, as was the case in 1895. Three Ravens were there when we arrived; they soon left, and were only hunting, not nesting, I think. Both rivers were bringing down large volumes of water, and the view up the gorge in the bright sunlight was fine. After taking some photographs we proceeded up the side of the gorge two or three miles farther than we had done in 1895. From its junction with the Ukanskoe river this valley first runs half a mile to the east, it then turns at a square angle towards the south and continues in almost a straight line as far as can be seen from the point we reached. Plate 27 shows the view of it we then obtained. The photograph was taken with the half lens and gives somewhat the same effect as looking through a pair of glasses. Both sides of the ravine are nearly perpendicular and can only be descended at a few points. I think it is clear neither water nor ice has cut this channel, but the river has occupied a long rift, and has made little

F. 27. 1 *S.* 3.10 *p.m.*

4-6-01.

BRINGING FIREWOOD HOME.

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impression on the hard granite-like rocks since it did so. Rivers do not generally cut straight lines or right angles.

A few Redwings were flying about disconsolately, for the birch bushes which contained their last year's nests now had two or three feet of snow round them.

When going up we had had considerable trouble in crossing a side stream, although we had selected a point where it was divided into four or five separate channels. So on the return Kjeldsen suggested we should keep on the higher ground, as he felt sure we should find an easier way over there—very bad advice! When you have a certainty, stick to it, and don't needlessly hunt for something better or you may only fare worse, as we did. That stream took us the way we did not want to go, over dreadfully bad country; and the farther we followed it up the hill, the broader and deeper it seemed to get. Large stretches of boulders, similar to those described by Colonel Feilden ("Beyond Petsora Eastward," p. 246), had their interstices full of water, held up by snowdrifts below; while others were covered with snow, and water under, into which we continually slipped. On one of these snow-covered areas I shot a male Willow-Grouse, a very handsome bird with large orange-vermilion wattles over his eyes, his head and neck a rich russet brown down to the shoulders, lightly pencilled on the upper parts with black, about a dozen dark brown feathers on the back, tail feathers sooty brown, edged with white, and the remainder of his body and wings pure white; feet fully feathered (as shown in Mr. Dresser's "Birds of Europe," Plate 485, October 18th, only more so). I hit his companion—male or female I cannot say, probably the former, as plumage was identical—but without a dog it was impossible to retrieve a bird showing so much white on those snow wastes. After about two miles of this kind of work I had decided to return to the place I knew we could cross, but waited to watch Kjeldsen, some 300 yards ahead, making a final effort and wading through snow-slush up to his knees; suddenly he floundered in to his waist, then struggled on till he reached dry land, and sat

down to remove his boots and lower garments. He was over, and where he had gone we must follow. Deadly cold, that snow and water were. Still, after wringing out our stockings, &c., and walking sharply for a mile or two, we felt no serious discomfort.

We now made for the highest part of the fell, and found fairly good walking most of the way back. On one of the high points (600 feet above sea-level) Hetley sighted a pair of Ptarmigan, and secured the female, I getting the male. The latter was yet almost white ; the upper part of his head had moulted into summer plumage, except some dozen feathers, which looked like small snow-flakes resting there; throat white; a few dark feathers on the upper neck and back; thirteen black tail feathers, some of them tipped with white; and an orange-vermilion wattle over the eyes, not so fully developed as in the Willow-Grouse shot shortly before. The female was much more advanced in her moult, only retaining the white on the under parts and the outer wing feathers, both of which would be concealed when she was sitting. (Her plumage is well represented on Plate 478, Dresser's "Birds of Europe," except that in the latter the under parts are whiter and the back darker in tone.) This species had not been seen in the district when we were here in 1895.

During the walk we saw Geese—first three, then two, and one; only the last showed any sign of beginning to nest, as it circled round once or twice; the others went straight away. Much of the ground crossed seemed suitable for their nesting. The only other birds seen during the day, not mentioned before, were a few Meadow-Pipits, one or two White Wagtails on the fells, and some Golden Plover. We regained the ship at 10 p.m., and were glad of dry things and dinner after our twelve hours' tramp.

June 4th.—As the morning was bright and sunny, I landed at noon to take some photographs in the village, one of which is represented in Plate 28. The sledge here depicted is much more highly finished and ornate than those in ordinary use, and is evidently reserved for the family in travelling from their winter to their summer

F. 11. ½ *S.* 5.40 *p.m.*

"ERRACTIC" 550 FT. ABOVE SEA LEVEL.

5-0-01.

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quarters. This one was painted in red, blue, and white; others in green, &c. I think the man sitting behind the woman is her father; her husband is shown in Plate 35. Returning to the village after lunch, I was busy photographing the sledge and reindeer (Plate 29) when Kjeldsen said "We may have fog"—there was then a small dark cloud to the north over the sea, not nearly so large as "a man's hand." In twenty minutes the whole sky was covered with low cloudy mist, and later in the afternoon fog shut out everything more than half a mile away. As photographs were no longer possible, we went to the lake above Lutni, visited on the 1st. The Divers were still there, but not a sign of any new nest; nor did they afterwards make one during our stay, so I expect they were using this lake till some other, less disturbed, should be free from ice. I shot another Wood-Sandpiper (male) on the margin of the lake; also a male Red-spotted Blue-throat in some birch-scrub near. The latter was the first seen or heard this year; and as the males give you every opportunity of hearing their beautiful song during most of the twenty-four hours it is probable they had only just arrived. Another fresh arrival was the Ringed Plover, three or four of which were on the margin of the pool below the village; none being there two days before.

During the day a large quantity of fresh-water ice has gone past the ship, evidently from Lake Ukanskoe, as these are clear green blocks which have had all their upper crust of snow knocked off in their passage down the rapids of the river. After the beautifully fine morning, we experienced a raw, cold, foggy evening, with the rigging and everything on deck dripping, when a fire was not only comfortable but necessary in the cabin. Such are the vicissitudes of an arctic climate!

June 5th.—The fog still continued this morning, but cleared off after noon, leaving the sun in undisputed possession for the remainder of the day. I went through the scrub near our anchorage for an hour, finding only two old Redwing nests. Several male Blue-throats

had come, and Redwings were singing in all directions—as they do day and night just now.

My chief object in visiting the Russian coast so early this year was to obtain eggs of the Bean-Goose *Anser segetum*, which is the commonest goose of the Murman coast, as far as my observations go, for we had always been too late to find anything but goslings in previous years. It was rather trying, therefore, to be told on arrival we were a fortnight too soon; and still more so, to have that confirmed by two or three days' unsuccessful search. Thinking it probable the natives would know where to find the nests, I engaged a nice young fellow—the husband of the girl on the sledge in Plate 28—with whom Kjeldsen could speak a little, to go with us. As both he and the principal men all said that most of the geese nested in the district round Lake Ukanskoe, we started in that direction, but kept considerably more to the right than we had previously done. The day was warm, and at first this young man took us up the hills at a most uncomfortable pace; after two miles of it I was wondering how I could put the break on him, when fortunately he saw a reindeer belonging to a neighbour which had broken loose. This deer had no intention of returning to Lutni at present, but it was caught after considerable trouble by a very amusing artifice. Then our troubles were over, for nothing would induce that beast to walk beyond a certain pace, and one which we found corresponded exactly with our own ideas on the subject.

I soon discovered our young friend's chief idea was to find his birds first—a very reasonable one; he would crawl up to the top of a ridge, and then search the valley and slopes in front with my glasses, which he very quickly learnt to use. We made a long loop course over the hills with Lake Ukanskoe at the end of the loop, but without result; for we only saw three pairs of geese, or rather, I strongly suspect, the same pair three times, as we found them some distance farther on in the direction they went when put up. Each time they were feeding on patches of sphagnum-moss—their favourite

F. 44. 4 S. 11.40 *a.m.*

GRAVEYARD, LUTNI.

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6-6-01.

food—and showed no signs of nesting. Shortly before reaching the lake we shot a nice pair of Willow-Grouse; these were near the top of the hill at an elevation of 550 feet. The male's plumage corresponded with that shot on the 3rd in the distribution of the colour and white, but the former was of a much darker tone, and contained more black. The amount of colour on the female was very similar to that on the female Ptarmigan, the lighter part being of a burnt-sienna colour in place of the yellow-sienna of the latter, and the feet were free from feathers. On dissection, their crops proved to be full of the ends of birch twigs—not sufficiently swollen to be called buds—and a little crowberry. The eggs in the ovary of the female had not begun to enlarge. Close to them we secured a male Ptarmigan, all three being shot in the valley on the left of Plate 30. This plate is included chiefly on account of the large size of the erratic, one unbroken mass, which occupies nearly the full width of the picture. It was a large sheet of ice which carried this "pebble," and dropped it on this hill-top 550 feet above the present sea-level. The Pomor and his reindeer are in the centre, while Kjeldsen, holding the male Willow-Grouse, sits near the end of the erratic to the left. I should say that the lumps—each the size of half a large walnut—on the body of the reindeer are caused by the maggot of a fly; although these spoil the skins and cause the poor beasts much pain, none of their owners appear to take any steps to remove them. The reindeer stopped very quietly while we had lunch, and tried to take the man's bread out of his pocket, but would not eat Dutch cheese. In feeding, it used its lips with a constant quick movement to gather the lichen off the ground, taking but little of the crowberry.

On reaching the lake we found that two-thirds of its surface was now free from ice, and the level of the water had risen so much that most of the islands were covered, their positions only indicated by the willow-scrub. The large blocks of ice photographed on the 3rd had been swept down or covered by the flood. Evidently the snow on the hills bordering the upper part of the river was now melting

rapidly, as there was no increased supply from the immediate vicinity of the lake to account for the rise. The Russian maps show another and larger lake some miles higher up the river; but we were unable to penetrate so far into the country.

We saw a pair of Richardson's Skuas and two Dunlins on the hills, and also shot a male Golden Plover and a female Dotterel; the latter contained an egg ready for the shell, and another enlarging. Just before reaching the shore on our return Hetley found a Shore-Lark's nest with one egg, much to his delight, as it was the first time he had seen this species in situ, and it was the first egg—other than Gulls and Eider Duck—we had seen since we left Risö fourteen days ago.

I paid our man two and a half roubles, half a rouble more than the bargain, as he had worked well, and gave him a half-pound box of tobacco, at which he was greatly pleased; for he was constantly making cigarettes at every little halt; a difficult task with tobacco—chiefly dust—which neither looked nor smelt very attractively. He presented me in return with a new pair of gloves made from reindeer-skin, which would have been splendid for winter driving, if I could have found any furrier in England to remove the smell from them.

It was a beautiful night, and although only a degree north of the Arctic Circle, we could write in the cabin at midnight as easily as at mid-day.

June 6th.—Another splendid day with brilliant sunshine throughout. After the weather we experienced in the early part of our voyage, days such as this make an impression on the memory. I found three or four Temminck's Stints by the pool under the village, the first seen this year, as I went up to photograph the cemetery, Plate 31, which is on a hill to the south-east of the village. Many of the graves must be close to the level of the ground, as there is very little soil above the granite here. All the memorials were of wood, and they varied considerably in design, &c. Some bore long inscriptions, others only initials and a date painted or carved, while

NEAR LUTNI. 8-6-01.

F. 44. 8 S. 1.10 *p.m.*

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ON KANIN PENINSULA. 23-6-01.

F. 16. $\frac{1}{2}$ S. 2.45 *p.m.*

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SHORE LARKS' NESTS.

many had only symbols. The circles on the cross to the right were filled with small icons and paintings of saints. The whole area was surrounded by a rough fence, parts of which had become much dilapidated, but there were no other signs of want of care or reverence in the treatment of this "God's Acre" in the far north; the fact which struck me most, however, was that on nine-tenths of the graves there lay an old axe! (even on those which from their size must have contained babies), some axes with and some without handles, while many graves had two or three. One with a handle may be seen at the foot of the cross with icons. All, like their late owners, were past service here. On inquiry I was told that these axes were placed there for the dead to use in chopping wood to make their first fire in the next world. If this be so, it is a curious example of the mingling of very different religious beliefs, and of the longevity of ancient pagan superstitions; for these Pomors must have been under the influence and teaching of the Greek Church for hundreds of years. The Greek chapel here is a small wooden building about 16 feet by 12 feet, by 6 feet high at the eaves; and is situated on the same side of the village as the cemetery, but nearer the fjord. It is so similar to that on Kanin Nos, shown on Plate 36, that it is unnecessary to reproduce the photograph of it.

After lunch we rowed down to the Zelenoi and Medveji islands. The first was void of bird-life, except a Long-tailed Duck on a pool and two Waders feeding below the tide-line; and on the second birds had made very little progress in nesting matters since our visit on the 31st. A few Shore-Larks were courting, and very earnest they were over it. Two pairs of Richardson's Skuas appeared to have no settled plans respecting their nests. A pair of Red-throated Divers were on the tarn, but soon left, and there was no sign of a nest having been commenced. No Black Guillemots were on land, nor were there nearly so many on the adjacent sea; the birds had dispersed over all parts of the estuary. By climbing down on to a projecting mass of rock I succeeded in taking a photograph of the Raven's nest, with Kjeldsen

poking the two young birds up, they sitting on the edge of the nest to bless him; the distance was too great, however, for them to be seen as clearly as I hoped they would. The old birds were about, very uneasy, but keeping well out of shot. I have never known Ravens run any serious danger in defence of their young.

Large numbers of duck were on the sea as we returned to the ship; among them we noted Common and Velvet Scoter, Long-tailed Duck (numerous), Eider, and Scaup *Fuligula marila*. I shot a Glaucous Gull and saw several others, the first we had identified clearly in this district. The bird shot measured 5 ft. 2 in. from tip to tip of wing and 2 ft. 2 in. from beak to end of tail. Unfortunately four more of them came to an untimely end that evening, not in the cause of science but the "pot," as some of the crew took a boat down the fjord and shot both them and some Long-tailed Duck, all of which they afterwards declared were very good! The Glaucous Gull is a fine bold bird in his own country, and comes swooping down at you, apparently with the idea you are shooting birds for his benefit.

June 7th.—Another fine bright day made us think that summer really was coming. Many Willow-Wrens had arrived and were singing in the scrub; I thought I heard one yesterday, but was not certain. I also saw the first Mealy Redpoll to-day, to identify. We landed after lunch in search of geese, and worked up towards the gorge until we were stopped by a stream too wide and deep to be crossed with comfort. All the tributaries of the river were so swollen now with the melting snow that it was most difficult to get over them without a thorough wetting. Having carefully crawled nearly up a hill which overlooked the most likely goose country on this side of the river, it was distinctly aggravating to hear two geese come up behind us, uttering their loud honks; they at once alarmed two others who rose in front just before we were able to see over the hill, and thus know the point they rose from. We found a Redwing's nest with two eggs, and also a Shore-Lark's; so that the birds are beginning to lay at last. The former nest was an old one, re-lined; and was placed in the fork

F. 16. 1 *S.* 2.30 *p.m.* 5-6-01.

TWO LAPPS AT LUTNI.

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of a birch tree which had squeezed the nest into an oval shape. The tarns and lakes on the hills were now rapidly becoming free from ice, although one at the highest point reached still had only a small piece clear, in spite of the water being three feet higher than its usual level. Two Black-throated Divers were here, and refused to leave for some time; but it was certain they had no nest. On the return journey a female Lapland-Bunting rose close to us, but we could find neither a nest nor a mate.

June 8th.—After breakfast I landed to photograph the Shore-Lark's nest, found on the 5th with one egg; it now contained four (Plate 32A). The position of the nest is a typical one for this species, being placed beside a tuft of dry grass, and having the upper edge of nest level with the ground. In 1895 we found eight nests of this species on various dates from June 24th to July 24th: of these five contained four eggs, two had three, and one—that on July 24th—only one egg. In 1897 four nests were taken, two of which contained five eggs, one had four, and one three. The first was June 30th, the latest July 11th. We only found one nest in 1899, which contained two eggs on June 21st. In 1901 we were successful in securing three nests with four eggs and one with two, the first taken June 7th and the last June 21st. From my observations during these four years I think the Shore-Lark is one of the earliest of the passerine birds to return to its northern home, and that some pairs commence breeding directly the snow is sufficiently melted; but the time of nesting varies more in this species than in many other birds inhabiting the same countries. On the same day we have found young birds and fresh eggs; and that at a date when the latter could scarcely be a second laying. This is not so with Fieldfares and others, of which, if the traveller finds his first nest with young birds, he may consider himself fortunate should he afterwards obtain fairly fresh eggs. The Shore-Lark appears to make the hollow in which its nest is placed; and nine times out of ten it selects a spot close to a dry tuft of grass, the colour of which harmonises well with that of the bird.

In the afternoon Kjeldsen and I went ashore to endeavour to find some Dotterel we had put up the night before, and which seemed loath to leave the place; but to-day they had moved a mile to another hill. These birds are far tamer when disturbed at night than by day. I put a Redwing off a nest with five eggs placed on the ground on top of a small ridge, and protected by a quantity of creeping birch—a good dry position; the bird was a female. The nest was certainly an old one, as last year's lining was distinct and contained a few little pieces of birch twigs and old leaves, over which was a thin new lining of fine grass, while the lower part of the nest was sodden and contained an earth worm. I have frequently noticed that old nests are used a second time in the north, a proceeding which enables the bird to commence laying directly after she arrives, and thus economises time in this brief arctic summer. The number of Mealy Redpolls, Willow-Wrens, and Blue-throats has considerably increased since yesterday.

After hunting up the Dotterel we struck across a new part of the country to the east, and found two fair-sized lakes divided by a bank, the water level being six feet higher in one than the other. On the upper lake were ten Velvet Scoters, several of them pairing. Three Buffon's Skuas were similarly engaged, the graceful rapid flight of this species being shown to perfection as the two males fought in the air. This season of the year produces much bad temper in the feathered tribe. On the next lake three Long-tailed Ducks were settling their domestic matters; after a time the rejected one went to another part of the lake, and relieved his feelings by harrying two Common Gulls which were asleep on a small stone projecting above the water; he drove them from two stones in succession and obliged them to leave that part. The stones were a hundred yards from shore or island, so this was no case of disturbing a proposed breeding-place. Three Redshanks were seen near the twin lakes, and we also noted a male Lapland-Bunting. Much ice came down the stream in the evening, probably from the lake, as the sides of the river are now

F. 32. 4 *S.* 5.0 *p.m.*

OUR CAMP OPPOSITE LUTNI.

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16-6-01.

practically clear. This caused trouble to the Russians; a number of boats being required for hours to watch the salmon nets and prevent the ice floes sweeping them away. The men began to catch a few salmon about this date; they offered one of the first to us, but as they asked ten roubles for a medium-sized fish no trade resulted.

June 9th.—One of the men brought on board a dead male Bramble in handsome spring plumage, which appeared to have died nearly a week before from starvation, as its stomach contained no vestige of food. The first Red-throated Pipit was seen this morning, near the river. The Shore-Lark's nest found on the 5th still had only four eggs, showing the clutch to be complete. The bird remained on the nest while we stood three feet off, and had commenced sitting, for one egg showed the red embryo.

June 10th.—The snow had now cleared off the land so much, and the weather had been so warm and fine for some days, I decided to make an attempt to reach Cape Kanin. We steamed through thick fog all day until 6.30 p.m., when floating ice obliged us to lie-to for some time.

June 11th.—The mate called me at 2 a.m. to say they had sighted land. Going on deck I found the fog had cleared off and the Kanin peninsula lay stretched along the horizon some twelve miles off. We steamed in a S.E. direction till 6 a.m. when the land was only four miles away, but much ice lay between us and it, and in fact all around except in the direction whence we had come; it was too thick to risk a little iron vessel like the *Expres* in, and indeed whatever my ideas on the subject might be, Captain Hansen had no intention of trying the experiment. His nerves—never of the most robust order when in unknown waters—had received a shock in Spitsbergen last year, when the ice closed in on the *Expres* and broke the propeller; but fortunately the vessel was got to land, and after a week's work a new propeller was fixed.

The coast line at the point reached was broken up by a number of ravines or gulleys; it showed two distinct terraces in some parts, and

appeared to rise to hills 200 feet high or more in the interior. Much snow lay on all the slopes, but the flat pieces were fairly clear; and that was all we were destined to know of the country at present, for even with glasses not many details can be learned at a distance of four miles!

We were obliged to turn and steam out of the bay in the ice, and then made towards the S.S.E. in the hope that it would prove to be more open. Soon after turning, a Snowy Owl passed us flying towards the land, the first and only one seen this year. We continued to the S.E. and S. along the ice until it became too dense to allow of further progress. At that time the outer edge of the ice was closely packed for several hundred yards in, as if two currents were driving it in opposite ways; but beyond that belt there was more ice than water between us and the coast now some eight or nine miles distant. The ice also extended far to the S.W. on the horizon. As the day was beautifully bright and clear we had every facility for observing the difficulties of our position. The ice was five to six feet thick, and much of it very dirty, so it had probably come out of Mezen bay in which it breaks up rather later than in other parts of the White Sea; in fact, the western side, which is the commercial route to Archangel, &c., becomes free from ice six weeks earlier than the eastern side. It being certain that there was no possibility of making land at present, we were obliged to return to our old anchorage, where we arrived safely after fourteen hours' steaming, but in such a blinding snowstorm that it was with difficulty the captain could find his way up the river.

June 12th.—As quite a week would be required to disperse the ice, I decided to go into camp and send the *Expres* to Vardö for letters and a few stores for the men. After the tents were fixed on the old spot we had occupied in 1895, Kjeldsen and I crossed the river to interview the headman of the village, to ensure the safety of our things without being obliged to leave some one always in charge. I handed him the Governor's letter, which he read, and then made a

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BUGRYANTZA (P) RIVER, KANIN

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copy of it to be posted outside his house. He also gathered the boys together and gave them strict orders to touch nothing in or around our tents. I may say here that his orders were effective, for we missed nothing during our stay, although the people were constantly passing the tents on their way to attend to the reindeer, and the camp was left unprotected for hours every day.

The man showed us into a comfortable little sitting-room, in which a wooden bedstead with red curtains occupied one corner, while another was filled by a brick stove quite as large as the bed; still sufficient room remained to afford seats for seven of us. The walls, neatly papered with even a frieze round the top, were hung with framed photographs of the children, friends, &c., and some coloured prints. Everything about the place was scrupulously clean, and from what I saw of the mistress I should be sorry for those who made it otherwise.

After our interview we went up on the hills on the west side of the river, a part I had not previously visited. On reaching a point opposite the large moraine described by Colonel Feilden in 1895 ("Beyond Petsora Eastward," App. F., p. 247), I found what appeared to be a continuation of it, extending over the hills for some distance; at any rate the two formed parts of one almost straight line. If this be correct, the glacier must have filled up the entire valley between, besides covering the hills on both sides. The ends of the moraines were nearly two miles apart, but the whole of the intervening space was composed of hillsides too steep for moraines to rest upon, so the stones carried down on that portion of the glacier are now probably some of those forming the banks of the river—far too large to be water-borne.

The birds noted were a pair of Wheatears, two pairs of Golden Plover, and two of Dotterel; the last had evidently selected their nesting-ground, and one bird pretended to be lame, but a careful search only revealed an empty nest.

Salmon seemed to be coming up the river more freely, as the

headman sold us a good fish for two roubles; it proved to be in splendid condition and was a very acceptable change from tinned food.

June 13th.—I learnt to-day that more than twenty youths had been scouring the country in the hope of securing the three roubles I had offered yesterday for a nest and eggs of any goose, but without result; so it looks as if the natives had as much difficulty in finding them as we have, for it scarcely seems probable that the birds have not laid yet, on June 13th. Our camp life is an unfailing source of entertainment to the natives (males) who sit down for an hour at a time and watch us dress, wash, cook, &c., with the deepest interest. This audience was a little embarrassing at first, but we soon got used to it, and at last they tired of the "show," for we made a point of giving them nothing. Plate 33 represents two men of the village who were said to be Lapps; but if so, I much doubt whether he on the left was pure bred. Both coats were made of reindeer skin, one having the hair out and the other inside.

We struck across the hills to the east until we reached a small river running into the head of Svyatonoskaya bay; parts of the river looked as if they would afford good fishing. Birds were scarce after leaving the birch-scrub, three Geese, four pairs of Golden Plover, and two or three Dotterel being the principal ones seen. Several Shore-Larks were still courting. Heavy showers of sleet during most of the afternoon and evening made the walking bad. A nest of six eggs of Redwing, partly incubated, near the camp, was our only booty.

June 14th.—Rain set in at noon, and continued till 11 p.m., accompanied by heavy wind, so that the tents became soaked towards night and began to leak slightly in one or two places. Not a pleasant day.

June 15th.—The rain had cleared off, but there was a heavy wind from the N.W. which must have been a gale at sea. After breakfast we went up the country near the river, while Kjeldsen crossed to the village to buy a salmon and some bread. He got a good fish of

6 lbs. for 1 rouble 70 copeck, and two cakes of white bread 10 inches diameter and 2½ inches thick, flavoured with aniseed and a little peppermint! the only kind available except black rye-bread, for which he paid fivepence each. A line of mail steamers has recently been established between this coast and Archangel which enables the fishermen to send their catch to market while fresh, and thus obtain a better price for it. At present they are receiving fifteen roubles per pood (equal to 10½d. per lb.) for salmon in Archangel.

While Kjeldsen was at Lutni he saw one of our tents suddenly collapse! and as we descended the hill after our walk we also realised one was prostrate; so we hurried down, to find one end of the top pole smashed off and both the other poles badly damaged. Being made of bamboo, and three or four years old, I suppose the strain of the gale had been too much for them; but I believe the disaster was partly caused by the upright poles being gradually forced into the soft ground, and thus leaving the ropes too slack; so afterwards we always put a piece of board under them to prevent their sinking. On our arrival Kjeldsen was already busy repairing damages, and few but a Norwegian could have done it with an axe and knife as his chief tools. He cut down some of the straightest birch he could find, fitted them into the bamboos, and bound them with copper-wire and string; but the most difficult thing was to bore a hole through the birch to receive the iron spike on the top of the other pole, for of course all the tools required were on the steamer. After two hours' work the tent was ready for re-fixing; this proved no light task, for the wind was still very heavy, and once wrenched the whole away from us, though fortunately without doing further damage. I decided to have ash poles in future. This delayed us so much that it was 9.30 p.m. before we turned out for our daily walk, which eventually brought us to the river seen on the 13th, but two miles higher up its course. The chief event of the night was finding a Lapland-Bunting's nest with six eggs, and securing both the old birds. The nest contained a quantity of reindeer hair felted with fine grass, also two or three white feathers, and was in the

side of a hillock amongst crowberry plants, which is the usual position selected by this species. I was surprised not to find more birds about, for this tract of land was covered with similar hillocks, moss-grown stones, dwarf sallow, birch, and hollows filled with little pools of water; —a very "birdy-looking" stretch of country. After crossing it we put up a pair of Snow-Buntings from a large mass of loose rocks, but a long search failed to reveal their nest. A Snipe was drumming over a marsh near, the first seen this year. When coming out we had put up a Dotterel on the hill above camp; and thinking it was the watching, not the sitting bird, we left it till our return, when we soon found the latter and one egg. The nest was close beside a stone twice the size of a man's head; an unusual thing, as these birds seem to prefer an entirely open space. (This statement is at variance with that of the late T. C. Heysham, quoted in the 4th edition of "Yarrell," p. 248, who says the birds usually select a site near a stone. I can only say that of the twelve or fourteen nests I have seen, the above was the first in such a position.) We left that egg for the clutch to be completed, and when we next visited it the village boys had forestalled us. This was the only egg of the Dotterel found this year.

The first flowers of the marsh marigold were seen on the 12th. To-day they are opening in all sheltered positions, and one piece of white saxifrage is out on the hill.

June 16th.—Leaving camp at 10 p.m., we crossed the river and went by a new line of country to Lake Ukanskoe. The only item of interest on the way there was a Red-throated Diver's nest with two eggs, the first this year. On reaching the lake we walked three-quarters of a mile farther up toward the head than the point previously reached, and were rewarded by finding a colony of ten to fifteen pairs of Fieldfares, a bird not seen in this district in 1895. All the nests found contained six eggs, and in those eggs taken chicks were just formed, showing that the whole colony had begun to breed at the same time. One clutch are the smallest eggs I ever saw, and if the bird had not been shot I should have said they were those of the

F. 44. 4 S. 4.50 *p.m.*

CHURCH AND CAMP ON KANIN.

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Redwing. Half the nests were in juniper bushes, others in birch trees. Near these a Redwing's nest also had six eggs slightly incubated. We found here the first nest of the Mealy Redpoll this season, with four eggs, placed in a juniper bush. Both birds came close to me, and the female settled on the nest several times while I was blowing the eggs six feet off.

We saw a few Bramblings, one Snipe, ten Velvet Scoters, and two or three small duck, apparently Teal. Many Willow-Wrens were singing round us, and some other birds whose notes I did not know. No Rough-legged Buzzards were seen all night. I have been much struck with the absence of these birds this year. In 1895 we found seven nests in seven days, while in 1901 we never saw a new nest, although we covered a far larger extent of country; and only two or three birds were met with, some of these being probably the same bird seen twice. It is very certain that no complete idea can be formed of the bird-life of any of these northern countries from the results of one summer alone. The lake was quite clear from ice to-day; and yellow violas, which had not opened yesterday, were in flower round our landing-place.

Plate 34 represents our camp at Lutni, which was photographed to-day. The tent on the left was that we occupied, and is described in the Appendix. The hold-all in front of Kjeldsen's tent contains our bedding, which was strapped up every morning to prevent its getting damp. The iron chimney belongs to a small Norwegian stove of the pattern used in Norway on the fishing boats; this stove proved a great comfort. Near it is a wooden box lined with zinc, most useful for keeping provisions.

June 17th.—Another long walk to-night on the Lutni side of the river gave very slight results for some hours. When returning I put a Wheatear off seven fresh eggs, the nest being under a stone close to the Russian's path from the lake. Then Hetley walked on to a Willow-Grouse with twelve handsomely marked eggs. As soon as we sat down the bird returned and stood within twenty feet quietly watching

us, but through the glasses a nervous look could be seen in her eye, showing she felt things were going wrong with those eggs. The nest was placed under a few pieces of birch, left by some Finn when cutting firewood. Less than half a mile beyond we had the pleasure of catching a Golden Plover asleep, or perhaps to be more accurate, without the second bird in attendance to give warning of danger. We were only thirty yards off when it rose from the nest of four eggs. Golden Plovers are most aggravating birds; when they are at all numerous they certainly assist each other in misleading you as to the position of the nest, and appear to take up the duty in relays. While crossing the last hill above the river, a Shore-Lark rose from four eggs slightly incubated, the nest being on a piece of level ground with the usual tuft of grass beside it.

On reaching the river at 8.30 a.m., we were glad to see the *Expres* had returned to her anchorage. She had been detained at Vardö by bad weather. Hansen reported the fishing there had also been bad, a line carrying one thousand six hundred hooks having caught two cod!

June 18th.—We struck camp after breakfast, and leaving the men to get the things on board, went up to a lake described on the 2nd instant. Although there are twenty to thirty lakes in the district, this is the only one containing an island, a fact we much regretted, as islands where no boat is available, generally afford breeding-ground for a variety of birds. Kjeldsen preferred wading out to helping in carrying the india-rubber boat up the hill, at least until he found out how cold the water was, and how bad the large stones were to walk on with bare feet! However, he got back safely with eggs of Black-throated Divers' (two fresh), Long-tailed Duck (seven slightly incubated, six fresh), Common Gull (three slightly incubated), and Arctic Tern (one fresh). While I was blowing the eggs a third Diver joined the pair and swam about with them for some time (see June 2nd).

June 19th.—We moved down to the islands in the morning, intending to start for the Kanin peninsula; but the wind was from the wrong quarter, so there was nothing for it but to anchor and await a

F. 44. 3 *S.* 12.30 *p.m.*

DRIFTWOOD ON BEACH, KANIN.

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change. The birds on Medveji island had now begun to lay. Among them were three pairs of Richardson's Skuas, which formed a curious example of colour, one pair being both dark birds; another, both white breasted; and the third, one light and one dark. Of course this variation of colour is a very old fact; but it was remarkable that the only three pairs on the island should exhibit all three combinations. The Black Guillemots were laying all round the island in hundreds, many of them having two eggs; and hundreds, almost thousands, of these birds were on the sea. A pair of Turnstones showed anxiety on the east side of the island, and I at once gave them undivided attention, but it was two hours before I found the nest, and then by good luck. It was placed under a large overhanging shelf of peat, in such a position that the bird could slip on and off in two different directions according to that from which danger was threatened. The young were formed in the four incubated eggs.

June 20th.—Fog in the morning prevented an early start, but by mid-day it had cleared enough for the captain to make out his channel between the islands. As on the 10th, it became thick again directly we reached the open sea, and remained so most of the day; to-day the sea was very quiet. We sighted Cape Kanin at 11 p.m., and then steamed down the coast in search of a suitable place for landing.

June 21st.—Knowing there was no harbour on the whole of this coast where even a little vessel like the *Expres* could obtain a safe anchorage, and that the weather might at any time curtail our stay, I decided to select a spot for first venture midway between the high land at the cape and the low tundra, chiefly marshes, which occupy the whole district about the Chizha river (Chischa river, Rae). We landed at 9.30 a.m. at the mouth of a river about forty-two miles south of Cape Kanin, and found a good place for camping on the top of the bluff, close to a small Greek chapel. Local time here is 2 h. 56 m. fast of Greenwich.

We were naturally anxious to know the name of the river near which we had landed. From a study of the charts and *Arctic Pilot* I felt convinced it was the Torna river, while our captain and crew were equally certain it was the Shoina. My chief argument in reply was that if they were correct the log had been badly kept, for it showed 42 miles from Cape Kanin, agreeing with the reported position of the Torna, whereas the Shoina was stated to be 50 miles distant from Cape Kanin. In this dilemma I wrote to His Excellency Governor Engelhardt, and received the following reply:—

DEAR SIR,—I have received your letters of July 8th and October 2nd. My answer to your first letter has been delayed, because I had not sufficient information respecting the Greek churches on the Kanin peninsula.

After further enquiry I now learn that there are no churches or chapels on either the Torna or Shoina rivers. On the whole Kanin peninsula there are only seven chapels resembling simple warehouses; of these six are on the rivers near to the Njes, and the northernmost one is on the Bugrjanka (Bugryanitza?) river. Therefore I think the river you have visited this summer, on which you found a chapel, was neither the Shoina nor the Torna. —I remain, SIR, yours truly,

(Signed) A. ENGELHARDT,
Governor of Saratow.

So that I can still give no certain information as to the exact spot visited by us on the Kanin peninsula. The Njes mentioned by Governor Engelhardt is probably the river Nes of the *Arctic Pilot*, 35 miles to the south of Cape Konushin, which again is 90 miles south of Cape Kanin. It is most likely, therefore, that the six chapels are all south of Cape Konushin, in which case the chapel we camped near must have been that on the Bugrjanka river. The only name in the *Arctic Pilot* at all corresponding with this is the Bugryanitza river, spelt Bogranetza on Messrs. Imray's chart of 1895; but this river is only thirty miles from Cape Kanin, a great discrepancy with the log of the *Expres*. If however this was the river, it will explain the remark in my diary (written when we believed we were at the Torna) that the coast showed a far greater curve than that represented

F. 44. 4 *S.* 2.10 *p.m.* 23-6-01.

TO SOUTH OVER RIVER FROM CAMP, KANIN.

by the chart, for the Bugryanitza is near the centre of the large bay to the south of Cape Kanin.

The first glance over the country showed it to be so similar in general appearance to that round the Gobista river in Kolguev that I could almost imagine we were there again, and all our further investigations confirmed the resemblance. The river is too shallow to admit even a small ship's boat like that belonging to the *Expres*, except at high tide, and the sea bottom outside shelves so gradually that the steamer was obliged to anchor three-quarters of a mile off shore in $3\frac{1}{2}$ fathoms.

As we rowed in to land, a flock of male and female Common Eider flew past along the shore; and we saw them over the sea on several other occasions, but did not meet with them on land. About a dozen Glaucous Gulls, most of them mature, stood on the sand bar watching our arrival; they were careful, however, both then and during the remainder of our stay, to leave before we came within range. The next bird to claim attention was very different in size, a Mealy Redpoll anxious about her nest of four eggs in a sallow bush close to our landing-place. On taking them next day, after a vain effort to secure a good photo, they proved to be too incubated to blow. The nest, which was lined with feathers and sallow fluff, had certainly been used last year; in fact I was inclined to think there were traces of its being three seasons old, but of this I could not be sure.

The steepness of the bluff made it hard work for the men carrying up the tents and stores, but when at last all were at the top, and the former securely fixed, it would have been difficult to find a more desirable position. We were on the north bank with the tents facing to the south; the soil was dry and covered with a short firm vegetation which made a good tent-floor, and did not work into mud in the first twenty-four hours like that at Lutni. The chapel, too, formed a useful shelter, if small, from any possible N.W. gales. On the west stretched the coast in a huge crescent, and of a more pronounced curve than is shown on the charts; a straight line drawn between the

two extreme points in view would enclose quite double the area of sea to that they represent, if this be the Torna. To the south below us was the broad valley through which the river wandered in curves and doubles so eccentric that perhaps only the Wye under Haddon Hall, among our English rivers, can give a faint idea of it. Plate 35 consists of four photos taken a mile higher up the valley; where it will be seen that the river, after flowing past *A*, doubles back to *B* before it reaches *C*, the neck of land dividing *A* from *C* being less than one hundred yards, while that from *A* to *B* is quite half a mile. With a series of loops like this to contend with, working the lower ground became a difficult task, as one could never be sure on which side the river a piece of land lay; and that was a river we never attempted to wade, for though the water was rarely more than two feet deep, the mud below it seemed to be fathomless! The fact is, this part of Kanin Nos is, like the island of Kolguev, one huge deposit of glacial mud several hundred feet thick; and was probably formed at the same time. Colonel Feilden's description of the geology of Kolguev, "Beyond Petsora Eastward," p. 229, would equally apply to this river valley, with scarcely an alteration. The lower part of the valley shows unmistakable signs of the comparatively recent upheaval of the land some fifty feet, before which the sea formed an estuary running about two miles inland, and under whose waters the mud was re-arranged in one broad plain. This level corresponds closely with a well-marked sea-beach which can be traced round much of the coast of Arctic Norway, especially in the Porsanger fjord, where I remember seeing it once in spring brought into sharp relief by the snow, and looking like a line ruled along the coast for miles. In Novaya Zemlya also a similar beach can be traced in places. It would therefore appear the land remained at that level over the greater part of Northern Europe for a considerable period, and then rose more rapidly.

Since the land assumed its present level the erosive power of the river (and therefore its volume of water) seems to have been about

F. 44. 6 S. 6.5 *p.m.*

SAMOYED HOUSE, KANIN.

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the same as now, for the numerous old courses it has excavated and deserted in this flat area are similar in size to its present bed. The older ones at higher levels are now occupied by bogs, and the more recent form long pools fringed by rushes, each the home of divers and ducks.

Above the part of the valley last described is another area in which a series of large mounds, some isolated, others joined to the bluffs, indicate a previous period of rest in the process of upheaval. The denuding power of the river must have been much greater, or exercised over a far larger period, than during the formation of the lower part of the valley. There are also fewer traces of deserted river beds here. After passing beyond both the above, the channel assumes the ordinary character of a valley cut by a stream through soft strata.

And what of the inhabitants? All those in the neighbourhood during our visit were asleep on the other side of the chapel under two or three feet of earth; we saw none alive, although our men met with two some miles to the south, when they took the steamer down the coast in search of a harbour. Two of the graves here were surrounded by neat wooden railings, while others were marked with crosses; one of the latter was far beyond the ordinary size, it stood 14 feet out of the ground, and was made from square baulks of timber measuring 11 in. by 11 in.; no date was visible, but it was evidently more than fifty years old. A skull was engraved on those crosses erected over graves. We counted nine graves here, but from the crosses it is probable others had become obliterated. The chapel itself appeared to have been erected in 1881, from a date carved over the door. It measured 16 feet by 11 feet outside, and was 6 feet high at the eaves. The interior was divided into an anteroom 4 feet, and the chapel proper 12 feet; and as will be seen in Plate 36, none entered either without a profound bow! as the doors were little more than four feet high.

About the mouth of the river was the largest collection of drift-

wood I have ever met with. There must have been considerably over a thousand tons on the beach and up both sides of the river as far as the tide affected it, consisting of uprooted trees large and small, felled trees and poles, great square baulks, parts of ships, Archangel deals, &c. I measured one pine tree 50 feet long from the roots to where it was broken off, and 3 feet diameter at 4 feet above the roots; it is shown in Plate 37. Such trees are not often found now in the Archangel district, within reach of a river and a saw-mill. A large timber importer told me the other day that when the men find a tree which will cut into an 11 inch deal, they sit down and have a smoke! Much of the wood was too decayed even for burning, and some of the oldest on the south side lay considerably higher than any storm could carry it now. The Samoyeds doubtless remove the best of the sawn timber, as the chapel, also the houses, in Plate 35 were built of 9 inch and 11 inch deals; one house, only half up, appeared to be waiting for a shipwreck to furnish a fresh supply.

After putting the camp a little in order, we walked inland up the north bank of the river. The greater part of the land both in the valley and uplands is covered with dense willow-scrub two to three feet high, through which it is most difficult to force a way. We soon found however there were well-defined tracks, of sufficient width for a sledge and three or four reindeer, running in various directions from the chapel, which had been cut or kept clear for miles through the scrub. The Samoyeds inhabiting this peninsula spend the winter months in the lowlands to the south, where they remain until they are driven north by the mosquitoes; when these pests arrive at their most active stage, all the inhabitants and their reindeer congregate on the highest land at Kanin Nos; there the cold sea winds must often give them relief from their tormentors. The district about our camp seems to be a halting-place on their spring and autumn journeys.

Where the land is free from scrub, most of the surface is thickly

F. 44. 5 S. 7.0 *p.m.*

FOX TRAP, KANIN.

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covered with hummocks from about the size and shape of a man's grave down to that of an English ant-heap, and carpeted with richly coloured mosses and lichens.

We were at once impressed with the fact we had come to a land of birds; they were far more numerous here than they had been on the Murman coast. Of geese we saw eleven, eight, and several lots of three and two; but it is quite possible the same birds crossed over us more than once. What species they were I cannot tell, for I may as well confess at once we never got within reasonable rifle range, to say nothing about guns, during our stay. A goose is a difficult bird to come to close quarters with, even during the darkness of an English winter; but in the constant broad daylight of an arctic summer, it is an almost impossible task. Once or twice I thought from viewing them through the glasses they were Bean-Geese, but this was very far from identification. Without doubt many of them were breeding in the district, but what could be done with those miles of scrub, every few yards of which afforded a dry and suitable spot for a goose's nest? We searched acres where we had seen geese alight, but without result; and almost hated the sight or name of the bird at last!

The general line of the river valley is about N.N.E., forming an acute angle with the coast, so that at the highest point reached we were less than three miles from the sea to-day. After skirting the scrub for some two miles we came to a stretch of open tundra, and saw a Buffon's Skua rise on the sky-line; in following this bird up I came on several Ruffs playing, and dropping on the ground, crawled behind the hummocks towards them. Suddenly a bird rose and I fired, too quickly for once, as it was the Buffon's Skua which fell after flying forty yards. Its mate at once appeared on the scene, and flew round us with angry cries, so we walked off eighty yards and sat down to watch. The bird settled on the eggs a few minutes after we became quiet. The one shot was the female, and she had not risen from the eggs as they were some distance to the right of the point

she came from. A male Willow-Grouse rose here, disturbed by the shot at the Skua. We next struck across to some large hillocks of peat which formed a conspicuous landmark; several Redwings were in the scrub near, but the only nest we could see was an old one. On a small lake below was a Red-throated Diver's nest, with the male bird sitting on two eggs slightly incubated. As we crossed the large marsh surrounding this pool two or three small duck rose, which I feel sure were Teal *Nettion crecca;* we saw others afterwards, but never succeeded in getting one. A Snipe was drumming over the marsh. Other birds seen during the walk were Red-throated Pipits (very common), Shore-Larks (common), Lapland-Buntings, White Wagtail, Willow-Wrens, Rough-legged Buzzards, Golden Plovers, Ringed Plover, Oyster-catcher, and Temminck's Stint. The only other nest we found was a Shore-Lark's with four eggs; but Kjeldsen had been more fortunate. After putting things in order round the tents, he had searched the bluffs near, with the result that he had four nests of Red-throated Pipit, one of a Stint, and a Shore-Lark with young, to show us in situ. I shot the Stint for identification, and found it was a male Temminck, the third male on the nest to-day. We began to think the ladies' duties were very light in this part of the world. The young Shore-Larks were only a few yards from the tents, and were a constant source of amusement during our stay. Their parents appeared to be busy feeding them during about twenty hours out of the twenty-four, chiefly on mosquitoes I believe; so there was little wonder at the rapid progress they made. On the 21st their bodies were covered with pale ochre-yellow down, and the quill feathers had just begun to show; on the 25th feathers had developed over both their bodies and wings. The photograph of them on Plate 32b was taken on the 23rd, and shows the young feathers covering most of the back of the upper bird. When the old bird—which I think was the hen—brooded them through the colder hours of the night, she sat very close and allowed me to photograph her when five feet off; but, alas, the exposure or something was wrong.

2 *a.m.*

ROUGH LEGGED BUZZARD'S NEST, KANIN.

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I picked up a dead bird near the tents of a species I certainly did not expect to meet with here, viz., a Tree Sparrow *Passer montanus*. It had been dead some time, as the flesh was dried up and the intestines &c. had been eaten by insects. Probably the bird had been driven out of its course by a gale.

June 22nd.—Two Ravens passed over camp this morning. After clearing away the eggs and taking some photos we started at 4 p.m. for a ten hours' tramp on the opposite (south) side of the river. Another Temminck's Stint rose from a nest of four eggs, ten yards from the river and close to where we had passed several times yesterday. A little higher up the river than the point shown in the left of Plate 35, a brook entered the main stream at nearly a right angle; and had cut a deep ravine for itself through the glacial mud. Large pieces of the banks had given way during the late thaw and had carried down parts of a well-worn sledge track. After following this stream for a mile we struck up towards higher land to the south. Two male Willow-Grouse rose from among the scrub, but we saw no hens, so they were probably nesting. After passing the scrub we noted a Buffon's Skua evidently on the look-out; as we walked towards it another rose quite half a mile ahead; whereon we promptly sat down and watched the second bird through our glasses, the first standing a hundred yards off to watch us. After a short time No. 2 settled on a ridge, and from its attitude was evidently on the nest; neither of us could see the bird at all with the naked eye, but taking its bearings carefully we walked up and soon found a handsome clutch of two dark green eggs well marked and slightly incubated.

Another mile brought us to the highest point, 250 feet above sea, from which we obtained a good view of the country round. We had evidently reached the watershed between our river and the next to the south. An undulating tract lay round us covered with much more stones and sand than the lower parts nearer the river; but what interested us most was to see two or three lakes below, and

we at once made for them. These were much the largest we saw in the district, but alas! they had no islands. However, we added five new species to our list on their shores, viz., Bluethroat, Scaup (1 pair), Long-tailed Duck, Dunlin, and Red-necked Phalarope. A small flock of the last did not appear to have finished pairing yet. On a large mound near the principal lake were a number of sledges, some of them laden with barrels of flour, others with skins, cooking utensils, &c. These sledges had apparently been brought from the south before the snow melted, when transportation is so much easier, and left in readiness for the summer migration. We inscribed our names with date of visit on some of the casks, and wondered what the Samoyeds would make of these strange marks. The deep green and luxuriant growth of the grass on the mound showed that the latter had long been used as a camping-ground. There were a number of fox-traps in the neighbourhood, similar to that shown in Plate 45, and baited with trouts' heads. Hanging from some cross poles was a quantity of reindeer meat which looked as if it had been there since last autumn; its condition did not tempt us to steal any! Judging from the height of the fox-traps and that at which the meat was hung, we came to the conclusion that the depth of the snowfall on level ground in an ordinary winter is from two to three feet here.

Having satisfied our curiosity respecting the belongings of the Samoyeds we took a straight line for camp, lying three miles from the lake in a north-west direction. The day had been fine, but a Scotch mist combined with a N.W. wind made it bitterly cold at night, and when we reached camp the water bucket was coated with ice.

We found a number of nests of the Red-throated Pipit and Lapland-Bunting during our walk. The former is quite the bird of the district, and we very soon selected only those clutches which showed well-marked variations. Whenever the eggs closely resembled those of the Meadow-Pipit we either shot the bird or saw its red breast; but all were the Red-throated species; and I may say here that we never identified a Meadow-Pipit in the country. Some of the eggs

EGGS OF THE GLAUCOUS GULL.

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very closely resembled those of the Lapland-Bunting, so much so as to require absolute identification; but all nests of the Pipits had no feathers as lining, while all those of the Buntings had.

June 23rd was one of the most perfect days one could hope to enjoy north of the Arctic Circle; no wind, not a cloud in the sky, and mosquitoes unobtrusive. After dinner I went up the river to inspect the only complete house we saw in the district, which was placed on a narrow neck of land between two curves of the river, as seen in Plate 35. A nearer view is shown in Plate 39. On going up to the house I found none of the doors were locked, and ventured to lift the latch and walk in. The lower part on the right was a store and had no communication with the other; in neither building was there any sign of fireplaces, a sure indication that the place is used only during the summer months. A curious piece of construction will be seen on the left, the upper part projecting four or five feet beyond the lower; I could find no explanation of this except that possibly another ship-wreck had provided them with a supply of long planks after the lower part had been built. The upper part was made of best 3 by 11 in. Archangel deals, a quality never originally intended for Samoyed houses. The farther side of the roof of the low building also projected five feet beyond the wall and formed a rough verandah. A door on the same side of the higher part gave entrance into a room five feet in height, one side of which was occupied by sleeping-bunks, while most of the remaining space was filled with flour barrels, &c. A short flight of well-made wooden steps (not flotsam) led to an upper room, evidently that of the proprietor; this contained a wonderful collection of boxes, skins, flour in bags, &c. On the floor under the window was a nearly new ship's grating made of teak; and on the wall hung a handsomely carved rudder-head, the history of which might have been interesting. There are fish in the river as I noticed a circular funnel net of a similar shape to our eel traps; and also a number of circular weights for fishing nets, made of baked clay. The nests found to-day were a Dunlin's with four eggs, Oyster-catcher's (2), Ringed Plover's (4), and

a number of Red-throated Pipits'. The second and third were on the sand-bar near the driftwood.

June 24th.—Although we were up at 10 a.m., packing eggs, photographs, and camp duties kept us busy till dinner, after which we started up the south side of the river. A Temminck's Stint came close to Hetley five or six times while he was blowing its eggs; a very unusual circumstance, as this species is much wilder at the nest than the Little Stint. It was here I photographed the fox-trap shown in Plate 40. The fox comes prowling round the deserted Samoyed encampment during the winter in search of offal; smells "fish," and enters the tunnel where he finds a delightful trout's head attached to a figure of four; and when he appropriates the fish the upper plank falls. I was surprised that the weight of the plank was sufficient to kill him, but suppose this must be so because none of the planks were weighted. While crossing a stretch of liquid mud, mixed with fragments of the bluff above, a White Wagtail fluttered out from under a lump of the sliding bank, just in front of Hetley who was last in the line; and its large nest of moss, twigs, and grass, lined with reindeer hair and feathers, contained five fresh eggs. The bird was probably young and inexperienced, or such a site would never have been chosen; for it seemed almost certain that the nest would be buried under the moving mud before the young ones could leave it. Then we came upon two Redwings' nests in the sallow bushes, each with six young; the second contained also an infertile egg. Six appears to be the usual full clutch for both this species and Fieldfares; and though I have occasionally found seven eggs I have never noted seven young in a nest.

We had now penetrated to a part of the valley beyond that occupied by the drift deposits previously described; and while crossing a damp area covered with hummocks of all sizes, Hetley called me to see four eggs of a light green colour heavily blotched with dark brown, eggs that I had never seen in situ before. The nest was a slight one of grass, and placed on a hummock two feet high, but so

F. 32. 3 *S.* 1.35 *p.m.* 29-6-01.

KILDIN ISLAND, THE BLUFFS ABOVE ANCHORAGE.

PAGE 62.

narrow the nest occupied all the top of it. After watching an hour, Hetley shot the bird, a male Wood-Sandpiper. I tried to photograph the nest, but the hour was 11 p.m., and a slight drizzle falling, so the result was not a success.

On our return we kept on the higher ground where a pair of Buffon's Skuas detained us some time, but I came to the conclusion that they were birds we had already robbed, and which had moved to fresh ground in consequence. Shortly after leaving them two Rough-legged Buzzards rose over us, giving their peculiar cat-like call; a sure sign there was a nest near at hand. I spent some time in carefully searching the edge of the bluffs, but without result, as these birds—unlike the White Wagtail—had learnt wisdom by experience; Kjeldsen had already found two old nests of theirs on the opposite side of the river, buried under masses of the fallen bluff. Hope of success had almost gone, when a heap of sticks, quite fifty yards from the ravine caught my eye; and there was the nest (depicted in Plate 41) containing two eggs which would have been hatched within forty-eight hours. This was the first nest of the species I had found on practically level ground. It is interesting to notice how some birds of prey not only adapt their ideas of a suitable building-site to the country, but also the number of their young to the probable supply of food. We noticed very few signs of small mammals in this district, hence the Buzzards would have to rely chiefly on small birds. The largest clutch of this species I find recorded in *Ootheca Wolleyana* is five, but Mr. Chaworth Musters tells me that he has taken six in Norway in a year when lemmings were plentiful.[1]

June 25th.—A yellow Wagtail we had seen yesterday near the Samoyed's house promptly evaded us by crossing the river, so to-day we divided into two parties, one taking the north side and the other the south. We again failed to secure the bird, but from what I saw of it through my glasses I believed it to be a male *Motacilla viridis*. While watching the Wagtail a Willow-Wren flew up from a little

[1] See also p. 123.

heap of moss at my feet; the nest was beautifully made and lined with such a mass of white feathers that one wondered how the birds had managed to collect so many. No eggs had yet been laid. Walking up to the end of this large peninsula I flushed a Pintail Duck from her nest and shot her, when she fell into the river and was washed ashore 150 yards down on the opposite side, where Kjeldsen picked her up. The nest, which was fifteen yards from the river, on an open piece of level ground covered with herbage some six inches high, was well lined with down, and contained nine eggs partly incubated. I have usually found this species nesting under the shelter of a bush, and there were scores of acres of dry scrub close to. As I was going back to camp with these and other eggs, I saw an amusing chase of a Raven by two Geese; the former was flying at a speed I never saw a Raven make before, and giving quick short croaks, evidently very sorry for himself! Unfortunately the Geese caught sight of me just as they were nearly up to him, and turned off; I expect he had been more successful in finding a goose's nest than we had.

In the next large bend of the river a pair of Wild Ducks *Anas boscas* rose from a pool. And then the treat of the night occurred. A Red-throated Diver came sweeping past forty yards off, exchanging loud notes of greeting with another bird, and disappeared over the edge of a bank without having appeared to notice my presence. So I followed it to see the cause of its pre-occupation. Just under the bank was a long narrow pool some forty yards long by thirty feet at the wider end where I stood, and close to me was the Diver. The change in its note when it caught sight of me was amusing, and the angry alarmed look in the eyes was as plain as possible. It made an effort to rise but there was not a sufficient stretch of water beyond it. After watching it some time I moved a little nearer, and there was the other bird crouching on the nest, its head laid down the centre of its back so as to be as little conspicuous as possible. Tableau! One Diver thirty feet off, and one forty feet, while a little Phalarope swam about

F. 16. 1 S. 2.30 *p.m.*

RED-THROATED DIVER'S NEST

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2-7-01.

between us catching flies and seeming to wonder why they had disturbed it with all this noise. Alas! the camera was in camp. So we all remained watching each other about ten minutes, when I waded round to the nest; the first bird leaving as soon as the way was open for it to rise down the length of the pool, and the second when I got up to the nest. I left the eggs, for I thought the birds deserved them after the fright they had gone through, and besides the eggs had nothing special in their markings! Easy virtue. I have only once before seen a Diver leave the nest, for it is among the most wary of birds; but Mr. Musters tells me that on one occasion he came upon a Diver which was only eight or ten feet off, and remained on the nest for some time while he and his daughter watched it.

Hetley and Kjeldsen had found a Common Snipe's *Gallinago cœlestis* nest with four eggs, a Ringed Plover's with four, and a Shore-Lark's with four, all much incubated. Both to-day and previously we have seen a number of dead Kittiwakes lying about, especially near the mouth of the river. All were in full summer plumage and appeared to have recently died. As the *Expres* was now in the offing, and we had tramped over most of the country round, I signalled at 2.30 a.m. for the men to come for us; and after two or three hours' hard work all was safely aboard again, the only thing forgotten as far as I know being that unfortunate Buffon's Skua, shot by mistake on the 21st, which we left hanging up in the ante-chapel where it had been placed to dry; I should like to have heard the remarks of the Samoyeds when they found the skin contained only cotton wool. We left them also a considerable collection of empty tins, &c., which they would probably consider of greater value.

We had spent a most enjoyable time on this Kanin peninsula, favoured by good weather; a little cold at times, but that was a blessing in disguise, as directly the sun obtained power, so did the mosquitoes. The change in the vegetation during the four days had been marvellous; when we landed there was a universal tone of brown over the country, now replaced by one of green. Flowers were

scarcely out yet; but we saw many lovely patches of a deep blue gentian, and trollius and marsh marigolds were opening rapidly in all the more sheltered portions. A list of the birds seen here will be found in Appendix I.

June 26th.—We steamed down the coast in search of the Kiya river, and after traversing thirteen or fourteen miles, arrived at what Hansen declared was that stream, but I feel sure it was really the Shoina; and the latter agrees far better with Rae's description of his journey. However it signified very little what the river was, for we were unable to land. When two and a half miles from shore the lead showed only three and a half fathoms; the wind was now from the west, and a slight swell was setting in to the sand beach; so that Hansen seemed fairly justified in declining to proceed farther in, and the distance was too great to take a boat in that state of weather. As far as I have been able to learn, Rae's method of chartering a Russian sailing-boat is the only practical one for visiting the greater part of this coast; the sand-banks extend so far from shore, and there are no charts of sufficient accuracy to allow a captain to take his steamer near them with reasonable safety. Also a sailing boat can be taken into many of the creeks and drawn up on to the beach during a storm, whereas no harbour exists on the whole coast for a ship.

There appearing to be no possibility of effecting a landing to the south of the Shoina river, I decided to make an effort to reach Korga island before returning to the Murman coast. This island, situated off the mouth of the Kambalnitza river and some fifty miles to the east of Kanin Nos, forms the north-east corner of the peninsula of Kanin; and is shown on our charts only as a shoal, although the Norwegian charts give it as land. In the *Arctic Pilot* it is stated to be three and a half miles long by one mile wide, and to be covered with grass and boulders. It is divided from the mainland by three miles of water varying in depth from two to eleven feet, which, like all the rest of this coast, affords no harbour for even small vessels.

Soon after turning north fog came on, causing much delay, so

F. 44. 32 *S.* 9.45 *a.m.*

VELVET SCOTER'S NEST.

PAGE 109.

3-7-01.

that it was 4 p.m. on the 27th when we sighted Korga. It was then fairly clear over the land, but foggy round all the rest of the horizon, with stiff W.N.W. breeze. The captain went in at quarter speed from eleven fathoms to four, then he dropped the anchor two miles from shore, and told me he did not consider it safe for a boat to leave, as we should probably be unable to get back to the ship! However, we had not come all that way only to look at an island from a distance of a couple of miles; and as two of the men volunteered to row us, we started at once before the weather got worse. On nearing the shore it became clear that owing to the heavy surf there was serious risk of the boat being stove in; so choosing the quietest place where a small shoal broke the swell a little, Hetley and I dropped overboard and got safely to land in about the centre of the coast line. A strange and curious spot it was: a long low stretch of land scarcely rising above high-tide mark, and in fact showing signs of being occasionally covered with water over most of its area; while on this flat surface were scattered numbers of sand-dunes, some of those near us rising to thirty and thirty-five feet, and gradually diminishing in height towards each end of the island. Most of these dunes appeared to have been built up by the wind round clumps of a coarse glaucous-coloured grass very similar to that common round the English coast in sandy districts. And the process was still going on rapidly in places, for some nests made this year were already partly buried. Some of the dunes were of old formation and were covered with a finer herbage, amongst which beautiful large forget-me-nots and a large mauve-coloured flower I knew well by sight (but alas not by name) grew freely, and were doubly welcome amid their desolate surroundings.

Two things were clear directly we landed; the first, that we must not linger, for the men evidently had difficulty in holding the boat off the shore, and the wind was rising; and secondly, that our trouble in reaching the island had not been wasted, as we were in the midst of the largest colony of Glaucous Gulls I had yet seen in the north,

even exceeding in numbers the assemblage at Nameless Bay, Novaya Zemlya, visited in 1897. On almost every dune there sat one of these Gulls on its nest, while all the larger dunes were occupied by three or four birds; and although this was June 27th, all the eggs were fresh or only slightly incubated, and no young were seen. Separating, we proceeded to collect and mark the clutches as rapidly as possible. The few receptacles we had brought were full at once, for gulls' eggs are bulky; then we filled our handkerchiefs, then our hats, in spite of the cold. But now the wind was beginning to lift the sand, and the boat was getting into more serious trouble; so after one short half hour and going over only a few hundred yards, we were obliged to return. The most difficult part of our task yet remained, viz., to get safely back on board the boat. Wading in together, I steadied the boat, while Hetley got in with the guns—poor guns! a prolonged visit to the gunsmith resulted from that afternoon—then I went back for the eggs, and handed them on board. In spite of all the pitching and rolling, only two were cracked and one broken out of forty-one; a fact which says much for the strength of a Glaucous Gull's egg. These eggs varied but slightly in colour and markings; the ground colour being either a light olive brown or bluish-green, with large blotches of dark maroon brown irregularly dispersed over the surface. One clutch, remarkable chiefly for their shape, are depicted full size in Plate 42. The only other birds seen during our hurried visit were a Ringed Plover (which seemed to have a nest near), three male King-Eiders *Somateria spectabilis*, a Pomatorhine Skua, and a gull with black mantle, but of what species we could not determine. The three last species were all on the wing, and probably only flying over. As often happens in such cases, the wind had moderated considerably by the time we reached the ship; still the weather looked so threatening all round, and the captain was so anxious to get his vessel out of these unknown waters, I reluctantly gave orders to start at once for Kildin island, which we reached at 7 a.m. on the 29th, after a rough passage.

F. 44. 17 *S.* 8.10 *a.m.* 3-7-01.

TURNSTONE'S NEST.

PAGE 110.

F. 6. 1/5 *S.* ½ *L.* 11.30 *a.m.* 3-7-01.

TURNSTONE AND YOUNG.

PAGE 110.

After breakfast I called on the Norwegian mentioned on our previous visit, and showed him coloured drawings of the birds which might be found here. He said he had seen a Smew here this year for the first time; he did not know the Red-breasted Goose or the Yellow-headed Wagtail (*M. citreola*), nor was he clear upon the differences between the various grey geese. He had not found the Glaucous Gull breeding on this coast. He knew little about the smaller birds; I have never met a native in these northern latitudes who did, the only birds which interest them are those available for food. As a proof that natives must not always be relied on, my host produced three duck's eggs which he was quite certain were those of the Velvet Scoter; he said he had taken them yesterday and shot the old bird near, but I was equally certain they were Merganser's, for they did not agree in size or colour with those of the Velvet Scoter. This man, with his eight sons and four daughters, was an example—rather rare in the twentieth century—of "blessed is the man who hath his quiver full of them." Coming to this island some twenty years ago, he has, with the help of his children, gradually built up a comfortable home, well supplied with all the necessaries of life. But I am omitting the chief factor of his success, a very stout and most capable wife, who took a large share in the conversation. I asked her what they did when they wanted a doctor, to which she replied "they never had wanted one during the last twenty years. One of the girls had been a little sick lately, but was better now." Think of that, ye victims of a crowded civilisation! All the family whom I saw fully bore out the mother's statement.

Three or four Pomatorhine Skuas were feeding on the offal of the seals' carcasses near the house, and when I returned in the afternoon two of them had fallen victims to a pea-rifle owned by one of the sons. One bird was a fine young specimen of the melanic type; and as it was the first I had seen of this species, I bought it for skinning. This Skua in the adult stage is so common during the whole summer on the Murman coast that I am convinced some fortunate ornithologist

will shortly discover its nest there, and when too old to revisit the district I may give my reasons for saying so more fully!

During the afternoon and evening we made two long excursions over the island, but only found a Red-throated Pipit's nest. The island had now assumed its summer garb, and presented a very different appearance to that on May 29th. The following were the birds seen: Redwing, Wheatear, Willow-Wren, White Wagtail, Meadow-Pipit, Red-throated Pipit, Mealy Redpoll, Shore-Lark, Lapland-Bunting, Snow-Bunting, Ringed Plover, Golden Plover, Dotterel, Oyster-catcher, Temminck's Stint, Dunlin, Long-tailed Duck, Herring-Gull, a black-mantled Gull, unidentified, and Pomatorhine Skua.

June 30*th*.—Leaving Kildin island early in the morning we steamed north, and rounding the Ribatchi peninsula reached Henö island at 4 p.m., where we remained during the two following days. Our first attentions were paid to the Velvet Scoters, as I was anxious to secure clutches for friends; and after considerable search two nests (six and seven eggs) were found in deep cracks in the peat near the spot where we first took eggs of this species in 1899. During our visit four nests of the Red-breasted Merganser (8, 8, 9, 6) were identified, all the eggs being partly incubated. Two nests were under stones and two in holes in the grass hummocks. Many of the Eiders had their young on the water, although some were still laying —probably birds whose first eggs had been taken. Almost all the Dunlins and Phalaropes had hatched out, and the few eggs found were much incubated. Turnstones also had young, and gave us endless trouble, for they are tiresome enough to watch on to their eggs, and ten times worse when there are young. Four Reeve's eggs were rather a prize, as we had not succeeded in finding them here before, although we had seen the birds in 1899. The Terns and Lesser Black-backed Gulls had not yet hatched. On the whole I came to the conclusion that most of the birds were a week to ten days earlier in nesting than in 1899. A species not previously seen here was the Bar-tailed Godwit, six or seven examples of which were feeding on the shore.

F. 44. 10 *S.* 9.5 *a.m.*

2-7-01

SCURVY GRASS (*Cochlearia officinalis*).

HENÖ.

Two of these had rufous-coloured breasts, and the remainder buff; if they were a family party of the year the eggs must have been laid when most of the country was under snow.

Kjeldsen watched an interesting contest from the ship this evening; a Great Black-backed Gull secured a young Oyster-catcher on the beach and made off with it, whereupon he was promptly attacked by the two parents, who each seized a wing and twice brought him down to the water; but he finally shook them off and escaped with his prey. Another bird in trouble was a Fulmar, which swam up to the ship with a yard of fishing line hanging from its neck. At the end of the line was a cod-hook, which very soon caught on the rope holding our boat astern, and thus enabled us to haul the bird on board. The end of the line passed through the skin of the neck on the side and about half-way down, but we could not see what there was in the throat to hold it; and as the skin round the string was neither inflamed nor raw he had probably carried his disagreeable appendage some time. We cut the string off as close as we could and then put him back in the sea, when he proceeded to have a bath, constantly preening the place where the string had been removed. He remained about the ship half the day, eating any scraps thrown to him, except cabin-biscuit, which was doubtless too rough for his sore throat.

The Red-throated Diver's nest (Plate 44) was photographed on Henö during this visit. It was about twelve inches above the water, and a well-marked groove showed where the bird slid up and down. No divers had laid on the margin of the large lake, which had been fouled from end to end by the ducks; the constant disturbance the latter caused had probably more to do with this than the dirt. The ducks had been feeding chiefly on a small, dark, blue-shelled bivalve, which must be very common here as stretches of the beach are composed of these shells.

We spent the morning of July 3rd on Little Henö. When walking up the low spit of ground to the south-east, I flushed a Velvet Scoter off its nest with seven eggs, shown in Plate 45. This was the first

found on the surface, and was placed in a small patch of dwarf sallow ten inches high, the same patch I believe from which I took a Turnstone's nest in 1899. While I was busy photographing, Kjeldsen discovered a Turnstone's nest (four eggs), a Phalarope's (four), and three young Turnstone, all in a small area; so that his luck was in the ascendant to-day. The first nest, and another Turnstone's towards the other end of the spit (all eight eggs nearly hatching), were placed on the open ground with no protection beyond a few blades of grass; whereas all the nests of this species found here in 1899 were under stones or in dwarf sallow. The three young Turnstones were so active that Kjeldsen tied them up in a red and white handkerchief, and reported that the old bird shortly came and settled on the handkerchief to brood them, when he was only a few yards off. If the bird could face that handkerchief I felt certain he would face the camera, so I fixed it up, and two exposures were obtained in twenty minutes, the better of which is given in Plate 46b. Feeling doubtful however as to their correctness, I waited more than an hour in vain to take a third photo; but the birds seemed to get more shy as time went on, and many were the consultations they held and the manœuvres they tried. It was always however the bird I believed to be the male which came near, the female never advanced to within fifteen yards of the young.

We afterwards went up to the higher part of Little Henö but saw nothing of interest, nor did we meet with any Little Stints here this year, as I had hoped to do after our experience in 1899. I suspect the nesting of this species to the west of the White Sea depends largely on the nature of the season in those more eastern parts of Russia which it usually frequents.

And here ended our expedition as far as ornithology was concerned, an expedition giving no striking results and no new facts beyond the one that the birds on the east side of the White Sea, at the spot we visited, correspond very closely with those on its western side. Still I feel sure from information received in Norway that the

F. 32. 5 *S.* 9.30 *a.m.*

MULTEBÆR (*Rubus chamæmorus*).

HENÖ.

3-7-01.

low marshy district from the Shoina river to the Chizha river will prove an interesting "bird-land" to any one able to penetrate into it and brave its mosquitoes. The Samoyeds leave all that part of the country during the summer months and retire to the north coast of the peninsula to avoid the mosquitoes; so that the birds are undisturbed throughout most of the breeding season.

Leaving Henö at 2 p.m. we made a quick passage to Vardö; and after securing our letters and a supply of coal, went on the same evening to Tromsö, where we arrived at 6 p.m. on the 5th. Here we met most of the members of the Baldwin-Ziegler Expedition (except Mr. Baldwin himself, who reached Tromsö a few hours after we left), and went over the two ships chartered for the voyage, the *America* and the *Frithoff*. The latter was under the command of my former captain, Kjeldsen, whose presence was a guarantee that her part as a relief ship would be carried out with thoroughness and ability.

Nothing worthy of comment occurred during the voyage down the coast from Tromsö to Bergen; and we reached England July 15th after a splendid passage across the North Sea.

CHAPTER III

1903

OUR expeditions of 1899 and 1901 were confined to the sea coast of Russian Lapland and the districts within a day's march from our vessel, so that we had little opportunity of learning what species of birds were to be found in the interior. The only authoritative information in English on this subject is that contained in Mr. H. F. Witherby's paper in the *Ibis* July 1900, to which I shall often have to refer in the following pages. As Mr. Witherby's visit was made in 1899, he was heavily handicapped by the abnormally bad season from which we also suffered so much, and he only reached his "bird-ground" on July 4th, too late for most things except mosquitoes. Still Mr. Witherby recorded many interesting birds, and from his account, it appeared that the country was well worth another visit in an ordinary season. I decided therefore to spend the early summer of this year in the same district, with Pulozero for headquarters, making ample provision against the chief difficulty from which both he and Rae suffered, namely shortness of food. My travelling companion was Mr. Chaworth Musters of Annesley, who contributed the larger share to what little success we had. Although the study of ornithology was the professed object of our journey, I must confess that our most cherished hope, when we left England, was to obtain eggs of the Spotted Redshank and Bar-tailed Godwit—taken *ipsa manu;* but, alas, empty spaces in our cabinets still await both species.

The present Governor of Archangel, Admiral Rimsky-Korsakoff kindly afforded us every facility for travelling in the country, and

indeed I doubt whether we should have succeeded in reaching our destination without his assistance, for the Russian peasant—in the Kola district at least—is a curious individual to bargain with, and apt to put an extraordinary value on his services.

Leaving Hull on April 30th in the s.s. *Tasso* we crossed the North Sea in (practically) a calm, and although a cold east wind blew there was no sea; this good fortune followed us throughout the voyage to Kola, and again from Kola to Hull. Of course, during a large part of the distance, we were steaming between the islands of the Norwegian coast; still there are many places on this route where Father Neptune is not always found in such a placid mood, and to traverse the whole distance without the faintest excuse for sea-sickness is probably a record voyage. Our captain told us that the ships of his line had been crowded with emigrants this spring, in consequence of the bad harvests in Norway of the last two years. The *Montebello* took over a thousand on her last voyage from Christiania.

At Christiansund we were joined by the third member of our party—Miss Juno, a black-and-tan Gordon setter belonging to Musters. She was a valuable addition, as she found a number of nests by putting up the sitting bird, and proved an irresistible attraction to geese and others. During the breeding season many birds will stop to mob a dog, when they would fly away without giving a man the chance of a shot if he appeared alone. Juno's one weak point was a fixed idea that our beds were primarily intended for her comfort; this was bearable in cold weather, but became rather trying as the summer advanced.

We went over the S.Y. *America* at Throndhjem where she was in dry dock, preparing for her next attempt to reach the North Pole; and spent a pleasant evening with her new commander Captain Coffin. He was evidently a man of considerable arctic experience, and had been engaged in whaling for more than thirty years. When, in 1878, Nordenskiöld just failed to complete his voyage along the Siberian coast during the season and was beset in Kolyutschin bay,

Captain Coffin was one of the Americans who saw the smoke of the *Vega* and wondered what vessel it could be.

Vardö was reached on May 9th, two hours after the Russian mail-boat had left for Kola, and we were thus stranded in this delightful spot for a week. As neither of us spoke Russian, a young man was engaged here through our English Consul to act as interpreter and servant, but he turned out a complete failure in everything except his ability to speak Russian. We spent the greater part of the first days in trying to charter a small steamer or sailing boat in which to complete our voyage; but no owner would even name a price, for the fishing was good, and the harvest of the sea could not be neglected. Fish were there in enormous quantities, as every boat came in laden to the gunwale, but the cod looked poor and thin, scarcely worth the catching. Something had gone wrong in the Arctic Ocean this year, and what that something was it would be very interesting to know. At the Lofoden fishing earlier in the season, the cod were in the same poor starved state, and their livers were so destitute of oil that they sank if thrown into the sea. Seals had been driven south on to the Norwegian coast in greater numbers than had ever been known before. The fishermen we talked to explained the poor condition of the cod by the fact that the seals prevented the fish coming up on to their usual feeding-ground. The men stated that the seals could not dive below 200 fathoms, therefore the fish were obliged to keep below that depth where food was scarce; and the long lines, carrying many hundreds of hooks, were set this year in 200 fathoms water, or deeper. Another explanation given us was that an unusual cold current of water had been coming from the north this spring and the cod would not come up into it, but lay in masses on the edge of the deep water. This may be "fisherman's natural history," all I can vouch for is, that the cod were the poorest I ever saw, and their livers contained so little oil its cost had risen in May to from 420 to 450 kroners per barrel, the usual price being about 50 kroners. The seals were far commoner than I had known them here before; and white

F. 44. 5 *S.* ½ *L.* 12.5 *p.m.*

MORAINE AT KOLA.

19-5-03.

PAGE 119.

whales (*Delphinapterus leucas*, Pallas) were as numerous as seals are in an ordinary year. I had only seen the latter animals near Novaya Zemlya previously, and the natives said they had always been rare on this coast. Yet in spite of their poor condition, the cod-fish fetched a good price, and all the men were earning so much money they could not be induced to accept other work.

Most of the country round Vardö was still covered by deep snow, and snowstorms with frost during some twenty out of the twenty-four hours of the first days of our visit showed that we had not yet parted with winter. Ravens were common, for we counted eleven together; one pair had eggs among the rocks behind the town, and another nest of this species on an island near contained young; the former nest being one of the very few I have seen which could be easily reached without a rope. Other kinds of birds were only commencing to arrange for their summer duties. Snow-Buntings were in flocks on our arrival, but most of them separated into pairs during the week; the males began to sing, and several birds were carrying building material about before we left. We watched two Sky-Larks *Alauda arvensis* for some time on the 11th, a bird I do not remember to have seen here before. A pair of Peregrines *Falco peregrinus* passed close on the 10th, probably on migration, as they do not breed in the neighbourhood. We also noted a Starling on the 11th, the first we had seen here; this species has therefore extended its range to the extreme north-east of Norway. A number of male King-Eiders were swimming near the shore, but only a few of them were in adult plumage; and a large flock of Long-tailed Ducks remained for some days about the island.

On May 16th we at last escaped from all the smells and other disagreeables of Vardö in the Russian mail steamer, a good boat built at Newcastle in 1895; and, after a quiet passage across the Varangerfjord, we anchored the same evening in Pechenga gulf. Ice still covered all the upper part of the fjord as in 1899, and our captain pushed the ship into it 40 or 50 yards, but could not pene-

trate to the usual anchorage off the Triphona river. We were joined here by another and smaller steamer which took off passengers and cargo for Zip-Navolok. Ivan, our guide up the Pechenga country in 1899, came on board with some of his family. He looked as dirty as ever—dirtier was scarcely possible—and much older, the result of illness he said.

When we went to our cabin we found it rather like Ivan as far as cleanliness was concerned; in fact it seemed doubtful whether the place had been thoroughly washed since it left Newcastle. The bed-linen was of more recent date, still I turned my pillow over several times before finally deciding which part showed the lighter shade of brown—one could scarcely call it white. However, the colour was the only inconvenience, and we slept undisturbed by insects.

As we went on deck the next morning, our steamer was entering the Kola fjord, and shortly after dropped anchor in Ekaterina harbour—now called Alexandrowsk.

Breakfast was not ready, so we landed without it, and went to call on the chief of the police, who received us most kindly, giving us cigars, tea, and preserved pine-apple, rather a trying compound for an empty stomach! He had been advised of our coming by the Governor, and presented us with a "red pass," which afforded the same facilities for travelling through the country as those given to Government officials. Without that red pass we should never have been able to penetrate beyond Kola; even in these remote districts it is absolutely necessary to have both permission to travel and assistance from the authorities in obtaining men. Ekaterina is quite a new town and port which owes its existence chiefly to the energy of Governor Engelhardt, who has fully explained the advantages of its position in his book (pp. 143–147) already referred to. This port was only officially opened in 1899, so it has not yet had time to develop, and contains little beyond the various Government buildings, a church —still rather painfully "bright" to English eyes in its varied colours of blue, green, yellow, &c.—with a few warehouses and other private

buildings. Ekaterina was then constituted the seat of government for the whole of the Murman coast in place of Kola; but the latter still remains practically the commercial capital, and will probably long continue so, being centrally situated in relation to the winter settlements of the inhabitants in this district. At present Kola is also the centre of a valuable summer fishing for salmon in the Tuloma and Kola rivers; but as the Norwegian custom of fixing kilenöter or bag-nets is being introduced into this and other fjords on the Russian coast, the river-fishing will suffer, as in Norway.

Leaving Ekaterina at two o'clock, we steamed up the Kola fjord, 30 miles in length, and anchored two miles below the town opposite to a large sawmill; the water is too shallow to admit large steamers above that point, although small ones penetrate some miles higher up the Tuloma river. The sawmill had been erected a few years ago in the hope that a good supply of timber would be obtained for it from the Tuloma and Kola valleys; and, as we afterwards saw, was well equipped with modern machinery, and arranged to handle the timber as economically as possible during its conversion from trees into deals and boards. But we learnt from the present manager, who was on board, that it had not proved a commercial success; and a Russian bank had been obliged to take it over in payment of a large overdraft. The bank was now anxious to sell, and was prepared to accept £2500, a sum certainly much below the original cost. The chief reason for this failure was that good trees, large enough to cut, were too few and too widely scattered. The trees are cut during the winter months and dragged over the snow by ponies to the nearest river or lake in connection with the mill, where they remain until the spring thaw takes them down. As the cutting and transport to the mill form a large part of the cost of the timber, it will be readily seen that unfavourable conditions in this department prevent a mill from competing successfully in foreign markets.

On our arrival we were met by Mr. Skjœrseth, a young Norwegian merchant, with two boats to convey us and our numerous belongings

up to the town, and during the next seven weeks we received unceasing kindness and assistance from him, for which I take this opportunity of expressing our thanks. I would strongly advise any Englishmen proposing to visit Kola to place themselves in his care, and get him to arrange for their lodgings &c. Mr. Skjœrseth's father came to Kola some forty years ago, and commenced business, in which he evidently prospered; the son has now the largest store in the place and supplies all the possible wants of the inhabitants. On reaching Kola, Mr. Skjœrseth—pronounced Shearset—took us first to see the rooms he had engaged at the eastern extremity of the town, and close to the Kola river. Then he carried us off to his own house—or rather a hired one, for his is being rebuilt this year—for supper; and a very good supper he gave us, with Scotch whisky of the quality Scotchmen take out "for fishing," not that exported for commercial purposes. Our host spoke English well, but finding Musters spoke Norwegian even better, he often lapsed into it.

I must say a word here about our rooms which compared favourably with our last cabin on board ship, for they were absolutely clean in every corner. The day-room measured 20 feet by 20 feet, and the bedroom 20 feet by 15 feet; a large archway connecting the two rooms. Mr. Skjœrseth had sent two iron bedsteads with comfortable spring mattresses for our use; and our host's appearance every morning with tea when he called us, savoured rather of England than the wilds of Russia. The man seemed to be well-to-do, and owned several cows; he was employed in some way in looking after the interests of the Lapps, but we never could get any clear understanding about his duties. His wife was a clean pleasant-looking woman, but very delicate—too many children. Cooking here was the chief difficulty; the greater part had to be done on the spirit lamp.

It is not generally known, I believe, that most of this country belongs to the Lapps, and not to the Russians. The latter own Kola and a small stretch of flat land behind it; but beyond that, rivers,

F. 44. 3 S. 10.55 *a.m.*

PRINCIPAL CHURCH, KOLA.

19-5-03.

hills, and woods are the property of the Lapps, and are managed on a species of communism. For instance, when a Scottish gentleman wished to rent the salmon-fishing in the Tuloma river, the lease was arranged with the general council of the Lapps, and the rent paid into their treasury; but I could not learn to whom and on what basis these common funds were distributed. It is very difficult to obtain accurate information on these points without a knowledge of the language.

The river Kola flows from south to north, while the Tuloma comes from the south-west; the land between them ending in a plain half a mile wide, showing clear traces of formation under the waters of the fjord before the last elevation of the district. There are several well-marked terraces, denoting the different epochs in this process, and these are continued on the east side of the river. One or both of the valleys, now occupied by the rivers, must have been filled at one time by enormous glaciers, for a moraine 200 feet high extends the whole distance between the rivers, to the south of the plain. This moraine, called Solovaraka hill, reaches nearly half a mile towards the south and there rests upon a hill, the top of which has been much denuded by ice. The northern face is very steep, like the front of a tip-bank. Plate 49 shows a part of this moraine with the left side cut away by the river Kola, thus exposing a section of the whole—a mixture of great boulders, gravel, and sand from top to bottom. On the plain above described stands the town of Kola. Founded in the fifteenth century by the monks, who erected their first monastery on the island in front of the town now occupied by the old church and graveyard, it had made considerable progress when Burroughs came in 1556 (in hopes of learning tidings of Sir Hugh Willoughby), for he then found thirty small vessels anchored in the harbour. At that time the island formed part of the mainland, but was afterwards cut off by a change in the course of the Kola, for this river has often altered its course where it enters the fjord. Forty years ago, when Mr. Skjœrseth's father first settled here,

most of the river still ran between the island and the town, and vessels of 200 tons could anchor close to his warehouse; now all that part is dry at low tide. Barents is also said by Rae to have called here in 1594 on his voyage to Novaya Zemlya, although Gerret de Vier only states that he anchored at Kildin island off the Kola fjord for six days; still, as a settlement was founded at Kola in 1565 by the Netherlanders, it is very probable that Barents visited it. Peter the Great considered the place of sufficient importance to erect a battery and large church, but the former was pulled down in 1780. Rae tells us that "Kola was twice visited by English men-of-war; once in 1809, and again in 1854, when the gunboat *Miranda* bombarded the town and almost destroyed it. In all, nearly a hundred houses, the old battery (?), two churches, and the Government stores of corn and salt, were destroyed. The inhabitants are said to have shot two English sailors, sent on shore for water, and the commander of the gunboat gave twenty-four hours' grace to the inhabitants to remove what they could." The only relics we saw of the bombardment were an old cannon damaged by a shot, and some cannon balls; the whole surrounded by a wooden fence. The size of the town must have fluctuated greatly at various periods, for we read that in 1582 there were 1900 inhabitants, whereas now there are scarcely 300, who live in a long line of wooden houses facing the sea—a north aspect, good for neither man nor beast.

But I have wandered from the birds, our object in coming here. In the fjord near Kola we saw two Ospreys, two Whooper Swans, a Rough-legged Buzzard, and some Cormorants, Several Great Black-backed Gulls and Herring-Gulls were flying round Abraham's Crag, a lofty precipice near the sawmill, where several kinds of birds were said to nest; and Goldeneyes *Clangula glaucion*, Velvet Scoters, and Common Gulls were numerous on the sea. On the mud flats of the Tuloma we saw a flock of ten or twelve Bar-tailed Godwits feeding, a sight which raised our hopes very high at the time; though during the ensuing weeks we often wondered where those birds had gone to

breed. A large flock of Mealy Redpolls passed over the house in the evening; while Red-breasted Mergansers and Whimbrels completed our list for the day.

On the 18th, our first visit was to the official in charge of the forests, from whom we obtained shooting licences at a cost of 50 copecks each, the cheapest we had yet taken out. We then crossed the Kola river to the east side, where there is a large stretch of low level ground covered with birch-scrub and juniper bushes. A long ridge extends behind this low land for some distance, on which a few stunted spruce mingle with the birch. The whole looked good for small birds and a number had already arrived, in spite of the heavy soft snow which covered all the ground except in the most exposed positions. A flock of about a hundred Bramblings passed close to us, chiefly males. We noted also Redwings, Fieldfares, Wheatears, Red-spotted Blue-throats (males singing), Reed-Buntings, a Merlin, eight Hooded Crows, and several Willow-Grouse. The most interesting birds we saw were a pair of Pine-Grosbeaks *Pyrrhula enucleator* on the side of the ridge; this species evidently breeds there as we found in the low spruce several old nests which agreed with Wolley's description.

An old friend we certainly did not expect to meet at Kola was the Rook *Corvus frugilegus*, yet there was no mistaking the solitary specimen with its bare patch at the base of the beak. We constantly saw it about the houses during our first visit, but it had gone on our return in July. We also noted to-day Goosanders, Wigeon, Teal, Spotted Redshank *Totanus fuscus*, and Greenshank *Totanus canescens*. Lemmings swarmed in the town, and ran about or lay dead in all directions. We were puzzled at first what had killed so many, until we learnt that those destroying imps, commonly called "boys," spent their time trying who could kill the most. It was certainly a year for Lemmings, and these were on migration towards the north-west as usual; all those from the country between the Kola and Tuloma rivers collecting here at Kola. The little animals had hugged the

land as long as possible, though they can swim long distances in quiet water.

On the 19th we again crossed the Kola river, and struck over the ridge into another valley, but saw little of interest beyond some more old nests of the Pine-Grosbeak. The snow was up to our knees in many places, and the little streams were so swollen that we were constantly stopped by them. Most of the birds we saw on the low ground yesterday were gone to-day, only a few Redwings being visible. New records for the day were Meadow-Pipit, White Wagtail, Raven, Sea-Eagle, Gyr-Falcon *Falco gyrfalco*, Golden Plover, and Common Scoter, the two last being common.

On the 20th we saw Pintail, Teal, and Long-tailed Ducks, and two pairs of Oyster-catchers. These last were flying down the Tuloma valley at a considerable height, and did not stop on the shingle beds at Kola, but passed on to the open coast. To-day we took a boat up the Tuloma, the finest river I have yet seen in Russian Lapland. Whooper Swans are common here at this time of the year, as we saw flocks of seven and four, besides odd birds. The natives say they come in April, and stop on the river until the early part of June when they disappear. We saw none in the districts we afterwards visited, although we heard that a Finn had brought a number of their eggs from the country about the higher waters of the Tuloma two years before; but our informant knew no exact details. The flock of Bar-tailed Godwits was still on the mud-flats to-day, but the Greenshanks had gone up to the hills where we saw them yesterday. After rowing some three miles we landed under a steep bluff, and soon heard the cry of a Buzzard, which showed that we were not far from its nest. A long struggle through heavy snowdrifts to the top of the hill was rewarded by our finding the nest on a projecting point of rock about thirty feet below the edge of the cliff, 150 feet high and practically perpendicular. The nest was quite inaccessible without a rope, and all we could do was to gaze down on the treasure it contained, a well-marked clutch of six eggs. The nest itself had evidently been occupied for many years.

F. 11. 1/2 S. *Noon.* 28-5-03.

"27 VERSTS FROM KOLA."

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Of course we could not leave a clutch of six Rough-legged Buzzards' eggs, so our first proceeding the next morning was to purchase a good length of climbing rope from our friend Mr. Skjœrseth. Armed with this we returned to the nest, and after securely tying our man into a loop let him down to a small ledge by the side of the nest, whence he could send up the eggs in a box. We then rowed up stream to a hill on the opposite side of the river, and found another nest of this species with six eggs. The position of the nest was also one perfectly secure against all enemies unprovided with a rope, and had been used for a number of years. As Musters wanted a specimen for his collection he shot the female while I blew the eggs. On dissecting the bird an egg the size of a pigeon's was found in the ovary, so that eventually there would have been seven in this clutch. To obtain two nests of this species with six eggs in one day is a record we cannot hope to beat.

After packing the eggs I went up to the top of the hill (550 feet) to get a view over the country, and saw a Gyr-Falcon come out from under a projecting ledge near the second summit, the top of the hill being divided; as the others were waiting for me at the boat I postponed investigation till the next day. Sixteen Geese passed over us to-day going up the Tuloma, and much ice was brought down by that river last night, both facts causing us to hope that the condition of the interior was improving.

May 22nd.—Any idea of going to find that Gyr-Falcon's nest was soon dispelled by the impossibility of getting a man to help to row the boat, for this was an important saint's day, and the third this week exclusive of Sunday! How can a nation possibly make much progress in its commercial life when it is blessed with so many saints as Holy Russia. We suffered on several occasions from the saints, and so had the subject brought home to us in a practical manner.

Being thus confined to land, we walked up the high ground to the south, to investigate the condition of the Kola river above the rapids. As far up as we could see it was still all covered with ice, though the

ice appeared to be breaking away at the sides in places. That night a large quantity of ice went past our house and the river rose considerably. A number of Swans, Teal, Wigeon, Pintails, Godwits, and Greenshanks were feeding on the Tuloma river in some large shallow bays which were dry at low water, and afforded good feeding-ground for many species. Musters hid behind some slight cover on a point, and shot a female Bean-Goose. Its length from tip of bill to end of tail was 29½ inches; bill and feet dull orange yellow, iris dark brown, no black on breast. The drawing of the beak and head I made at the time corresponds very closely with that which Mr. F. W. Frohawk illustrated in the *Field*, October 4, 1902, as *Anser arvensis* (see p. 144).

More White Wagtails have arrived to-day; and new birds seen were Willow-Wren, Lapp-Titmouse *Parus cinctus*, Common Sandpiper, Common Redshank, Arctic Tern, and Lesser Black-backed Gull. On the 23rd we first noted Lapland-Buntings, Shore-Larks, Hazel-Grouse, Ringed Plover, and Black-throated Divers.

May 23rd.—This not being a saint's day, we got our men to row us again up the Tuloma to the hill visited on the 21st. Soon after landing, we shot a male Hazel-Grouse, the first and only bird of this species we saw. Mr. Witherby also only shot one, viz. near Lake Imandra considerably farther south; and Pleske considered its occurrence so far north as the Imandra uncertain, so the species is evidently rare in this part of Russia. Stopped by rain and obliged to shelter among the rocks for an hour, we got at last to the top of the hill and climbed down to where I had seen the Gyr-Falcon, but it was some time before we could make her come off. She fetched the male and both flew round with very little noise. A careful examination showed that the nesting-place was quite safe from all the members of our party; for it was on a ledge under a projecting mass of rock which stood out ten feet and extended some distance on either side of it. The rock was sheer from under this ledge to where we stood, without the slightest foothold. Neither could the nest be approached from

the sides as the ledge was not continuous; so we were obliged reluctantly to give it up and return to the boat. There were two birds to-day at the Buzzard's nest, showing that the male had not been long in procuring another mate.

On returning to Kola, we heard that two Finns had come down the Tuloma to-day from Finland; they reported that there was only a narrow channel of water yet, most of the river being still covered with heavy ice.

May 24th.—As our chief anxiety now was to get up country, we walked to the point again this morning where the Kola river is navigable, and were pleased to find that all the ice we had seen on the 22nd had disappeared. We heard later in the day that the whole route to Pulozero was believed to be clear from ice except part of one lake. The river was rising rapidly, and next day the flood was so strong we found it impossible to row over to the east bank. We therefore crossed the Tuloma and spent some hours in exploring the hills on its west bank, but with very slight result. There were a number of Red-spotted Blue-throats near the river which seemed new arrivals. The only fresh birds seen to-day were two Swallows *Hirundo rustica*, and a solitary Red-throated Pipit sitting on a garden fence. The latter was the only one of its species we saw in the country, and Mr. Witherby only met with it near Ekaterina, yet I had found it breeding at all the places near the coast I had visited; from which it appears that this bird does not penetrate so far inland as its relative the Meadow-Pipit. The first Redwing's nest was found to-day with two eggs.

On the 26th we succeeded in crossing the Kola by selecting a time when the tide was high, and went up to a lake Mr. Skjœrseth had told us of. It was the best place for birds we had seen near Kola. Our troubles began to-day with the Greenshanks, and continued for many a day, till I almost hated their name. They and the Spotted Redshank appear to have brought the "art of nest protection" to perfection; the male does not stop around and give the site away, as

many of the other waders do; he is generally feeding in a marsh a mile off, and if luck should take you into the neighbourhood of the nest, the hen bird will never rise unless either you are about to put your foot on her, or you see her and your eyes meet. Large areas of the hillsides are covered with a mixture of reindeer-moss and other lichens which so closely resemble the colouration of the bird, that even a well-trained eye will fail to detect her in such surroundings. "Oh, but why did you not watch the bird when she went off to feed?" says some brother ornithologist, full of pleasant memories of his victory over this species in the Scotch hills. The circumstances are rather different; in Scotland it is often possible with good glasses to watch the bird from the lake to the nest half a mile away; in Russia however you hear a hen Greenshank rise from a marsh with her usual noisy cries, see her fly over one or two ridges to dive in among the trees, and as the woods are very open, she is probably only taking a short cut to some place beyond. This bird generally selects a position for its nest beside a grey-coloured stone, or between two stones, sometimes on the top of a large erratic, or by a piece of grey weathered wood, but always where the bird can see well around her.

Two Bean-Geese were on the lake—or rather group of tarns—when we arrived, and were so busy looking after Juno they took no notice of her master, and came twice within easy shot. Just beyond the lakes were some high rocks, and here a pair of Ravens had young, partly feathered. The nest was an old one, very well placed under an overhanging rock, which made it difficult of access even with a rope. The old rascals did not like the appearance of the gun, and moved down the valley, thus trespassing on the private grounds of a Rough-legged Buzzard which rose at them. This led us to the nest of the latter, on which the female sat tight while three of us watched her from the other side of the gully; it was only when I got close to her that she rose, showing five eggs. The nest was inaccessible without a rope, the rope was in Kola town, and the eggs were very poorly marked, so the birds hatched out in safety so far as we were con-

F. 44. 3 *S.* ½ *L.* 10.20. *a.m.*

30–5–03.

KITSA STATION.

PAGE 131.

cerned. A Wood-Sandpiper—the first seen this year—and a pair of Redshanks were feeding close to us while we had lunch; and a Ringed Plover settled on the ice to rest, evidently rather exhausted, and probably just arrived on migration. We secured a handsome Ruff dressed in black and burnt-sienna colours, and his stomach full of small insects. A Hen-Harrier *Circus cyaneus* was hunting near us for a short time, but did not come within range, and we never saw this species again in the country. Meadow-Pipits were now common everywhere; and we found another Redwing's nest to-day in a juniper bush, with three eggs.

May 27th was a day of worries and bothers without end, for we were at last to make a start for the interior. The route we proposed to take is I believe the only one in Russian Lapland over which it is possible to travel during the summer months, except that up the river Tuloma. In winter when the country is covered with snow, and the White Sea frozen, it becomes an important highway between the Kola district and Kandalax, Archangel, and the south. A regular postal service is then maintained by means of reindeer sledges, and the inhabitants of the interior transport their yearly supply of flour, sugar, and other necessaries from the coast to their homes. Goods can then be sent from Kola to Pulozero, a distance of 69 versts, at a cost of 15 copecks per pood (equal to 36.4 lbs.), an indication of the ease with which reindeer can draw considerable loads at that time of the year. This winter road cannot be depended upon beyond the middle of April, as the snow then becomes too soft to travel over in early seasons. But in summer all this is changed, the only "road" between the various lakes and rivers consists of a footpath or track over which everything must be carried on men's backs; and as the new lines of mail-steamers afford an easier and quicker means of transport to the south, the inland route is now rarely used. The Government still maintain a service of transport for the use of their officials and other privileged individuals. The 233 versts from Kola to Kandalax are divided into seven stations, which are each let by contract every year

to men who undertake to keep a certain number of persons—generally four—there during the summer. Travellers having a Government red pass are entitled to the services of these people on payment to the contractor of a few copecks per verst; but those unfortunates without this most useful paper must make their own bargain—a very difficult process. After Rae's and Witherby's experiences I was determined to take enough food and not to trust the resources of the country. This entailed an amount of luggage far beyond the transport power provided by the red pass, and much time had been wasted during the last nine days in trying to come to terms with the men through Mr. Skjœrseth. After much haggling, it was at last agreed we should pay 2 roubles 50 copecks from Kola to Kitsa, and 2 roubles from Kitsa to Pulozero for each extra load of about sixty-five Russian lbs. (1 Russian lb. = 0.90282 English lbs.). As forty versts out of the seventy were by water, these prices paid them well. Then came the question, how much food would three men require in five weeks? I had sent instructions to our host at Pulozero the winter before to get in an extra supply of flour, but could not learn whether he had done so. All the provisions had been packed in cases of the right weight before we left England, the contents being assorted as far as possible. After much consideration it was decided that eleven of these must go. Clothes, bedding, collecting gear, &c., were finally so reduced in quantity as to fill only three waterproof sacks—invaluable for this kind of travelling—a canteen, and a gun-case, fifteen loads in all, as the two last items were combined as one. The artful old man of each party, with a keen eye for a light load, generally made for that canteen and gun-case, weighed one in each hand, and proceeded to cord them on his carrying frame, a piece of birch bent in the shape of a capital U and laced across with cord. Then his troubles began, for those two things always objected to travel together, and one or other was constantly slipping out of the cords. After having the canteen on his back an hour, he usually found that lightness was not the only consideration in a load, and that the round canteen hurt his spine. If

these canteens had one flat side they would be carried with ease by either man or horse; but it is always difficult to get the makers to attend to these small details.

Our headman got rather drunk in the afternoon and declined to go or to carry a load, but he sobered down in time, and at last we started from Kola at 8.30 p.m. in a sharp rain, all well loaded with camera, fishing-rods, &c. Mr. Skjœrseth kindly came with us the first three versts—which must be traversed on foot to avoid some heavy rapids in the Kola river—as he wished to see us safely loaded into the boats at Sascheika (Sashyok : Rae), the point where the river becomes navigable. There is only one hut here, built for the use of the Customs officials during the winter months. Kola town and the other ports on this coast have the right to import all classes of goods, except spirits, free; but if the goods are taken into the interior duty must be paid on them. We found the boats in fair order considering they had been exposed to weather all the winter; of course, a few rags were required to stop cracks, but after that there was little baling. The boats were heavily laden, ourselves four men and much luggage in one, and three men with our interpreter and more luggage in the smaller one. Juno picked the softest sack and most sheltered position, and took little interest in the scenery; while we sat perched on boxes, and made ourselves as comfortable as we could. Although the worst of the flood—the highest for several years—had subsided, the river was still very high, and our men had a swift current to fight against all the way with very few backwaters to ease them. They worked well the whole night and only stopped three times to eat a little bread and fish, and smoke. The banks were almost entirely composed of sand, with a few patches of glacial clay at long intervals; rock in situ only appearing two or three times in the upper part of the river. Sometimes these sandy banks rose to fifteen and twenty feet above the water, but they were generally not more than two or three feet. Low ranges of hills enclosed the valley of the river on both sides, and were covered with birch and pine—none of the latter large enough for timber.

It was rather weird rowing on hour after hour through the night up the silent river, our boats the only sign of human life the whole distance. In spite of the clouds there was light enough to see the landscape at midnight, and soon after the lower clouds cleared off, the light increased and before two o'clock it was full daylight again. Two or three pairs of duck—chiefly Goldeneye—were the only birds seen, except a Hooded Crow which foolishly rose from its nest in the top of a pine tree close to our side of the river, for the nest was so well hidden, we should not have noticed it without the bird's assistance; it contained four eggs, nearly fresh.

We reached Tschongai, fifteen versts from Sascheika, at 4.45 a.m., only seven and a quarter hours, very good time considering the stream and heavy boat. Our landlord at Kola had foretold we should require a day for that part of the journey. Tschongai consists of one good new hut, built by Government for the use of the men who erected the telegraph wires in 1896. Since that work was completed it has been used only by the boatmen, and the interior was dirty beyond description. We swept a small area for our own use, while the men lit a fire in the iron stove; and then all proceeded to make tea. We re-commenced our journey at 7.15, but were promptly stopped by a side stream that had carried away the wooden bridge. I went up the stream nearly a mile, but could find no place to cross. A hen Capercaillie got up ten yards off and stopped to watch me a little before she flew away, but there was no nest. On my return I found Musters in the midst of a long argument with the men; he had suggested they should bring the small boat overland 260 yards, and they only asked 30 roubles extra for doing it! At last we told them we would pay them what Mr. Skjœrseth should say was right, and if they would not agree to that they might return to Kola, we should stop here till other men came; our eleven cases of food made us quite independent. When the men saw we meant what we said they gave way, and the boat was soon over. After an hour and a half's delay, mostly wasted in talking, we started again on our tramp of seventeen versts to Kitsa.

F. 44. 4 *S.* 3.35 *p.m.* 27-6-03.

PULOZERO STATION.

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Musters saw an Osprey at Tschongai, and there were many small birds about the place. After walking three versts we put up a Goose from a marsh and felt sure it had a nest near; but half-an-hour is of little use for finding a goose's nest. That was a weary march, in winter clothing, with good loads, and a hot sun shining on us, over tundra bogs and snowdrifts; one we shall not forget in a hurry. There were twelve inches of snow in places over the latter part of the way, and it was quite clear the road would have been impassable a few days earlier. I strongly advise any traveller on this road to arrange his journey so that the walk from Tschongai to Kitsa may be done during the night. Causeways have been made over the worst pieces of bog by sawing trees into planks and laying them four wide on cross pieces; and we gave them many a blessing, except in those places where the planks were rotten, or rocked on their round lower side. We reached Kitsa at 2.45 p.m., and the carriers an hour after, as they had stopped for a short sleep on the way. Plate 51 shows the party during one of our halts.

The station of Kitsa consists of two huts standing close to the junction of the Kola and Kitsa rivers. Plate 52 is from a photograph taken from a bank on the north side; it shows the Kitsa coming from the left (east) side and the Kola from the south. The hut to the right is the "rest-house" of the station, and that to the left belongs to the man who has contracted for this station several years. He had given us permission to use it, and to break the padlock if locked up. The back of a small axe removed the latter and allowed us to take possession. After ten minutes' sweeping, and a good fire to drive out the smells, the place was quite comfortable. A Teal that had recently broken his neck on the telegraph wire near was soon in the frying-pan, and formed a welcome addition to the meal; a good bird at any time, but delicious when well fried in butter, with ample supplies of "hunger-sauce." Our canvas hammocks were rigged up to-night for the first time, and proved most comfortable. No traveller in these parts should be without them; they are light to carry, and can be

fixed in a few minutes to hooks screwed into the wooden walls of the hut; but the sleeper must not forget to put a double thickness of blanket under him, as the cold strikes disagreeably through the tightly stretched canvas. We were in bed by 8 p.m. and just going off to sleep, when the five men from Kola came in to say good-bye. They were returning home at once, after a meal of bread and dried fish and an hour's sleep!

May 29th.—After yesterday's exertions, short walks easily satisfied our desire to explore the new country. We were in a similar position to that at Kola, as the Kitsa river came in from the east, and the Kola flowed away to the N.N.E., leaving us only three points of the compass open to walk over. Both rivers were still in heavy flood, and there appeared to be little prospect of our continuing the journey for some days. This did not affect us much, as we were obliged to wait while the remainder of the luggage was brought on from Tschongai by the two men remaining with us, who belonged to Kitsa station. Birds were not numerous here, still we noted during the day Redwing, Fieldfare (nest with one egg), Wheatear, White Wagtail, Grey-headed Wagtail, Meadow-Pipit, Lapp Tit, Reed-Bunting, Redstart, Brambling, Mealy Redpoll, Rough-legged Buzzard, Teal, Goldeneye, Capercaillie, Wood-Sandpiper, Common Sandpiper, and Greenshank. But the most interesting birds seen were a pair of Waxwings, which flew past the hut and disappeared in the birch on the other side of the river. Unfortunately, this was the only time we met with the species. Pleske records this bird from the Imandra and from Kandalax. In the evening the men told us they had found a duck's nest in a hollow tree, and as it was but a verst off we went with them to see it. The duck had been put off the nest by the men and had not yet returned. We had been hunting for hollow trees some hours that day, and it was rather provoking to find we had been within a few hundred yards of this one during our wanderings. The stump stood on the edge of a steep bank overlooking the Kitsa, and had evidently been inhabited by the birds for many years, as two triangular holes had been

cut in the side facing the river, one two feet below the other. When the bottom of the cavity sinks through decay of the wood, so that the men cannot reach the eggs, they cut a new hole lower down the trunk. We were much pleased to find eleven eggs of the Goldeneye with a good quantity of down. The eggs were fresh, so we took them home unblown to make their contents into "buttered eggs" for breakfast.

May 30th.—We first went down near the river searching for hollow trees, but not one could we find suitable for a duck. Several Siberian Jays came round us with their usual curiosity, and we heard a Cuckoo for the first time. Fresh birds seen here were Dipper (sp. ?), Willow-Wren, Great Grey Shrike *Lanius excubitor*, Willow-Grouse, Red-breasted Merganser, Whimbrel, Arctic Tern, and Common Gull. Mr. Witherby also saw Dippers at this place in 1899, so they are resident here. Redstarts were courting still. We were struck by the number of pine-trees in all directions, in which Woodpeckers had bored holes, yet we had not seen a bird; but these trees last so many years, even when partly decayed, that the results of nearly a century's work may be seen. We then turned to the east, and climbed a hill whence we obtained a view over much of the surrounding country. Many lakes were in sight; and the Kitsa, which runs through a broad flat valley for some five miles before commencing its tumultuous descent into the Kola, had overflowed its banks and converted the valley into one great sheet of water. The remainder of the country was undulating and wooded.

Soon after our return to the hut, a man was seen on the opposite side of the Kitsa, so Musters crossed in a small flat-bottomed boat, and brought him over. He turned out to be one of the station men who ought to have been here awaiting our arrival. After much talk he went back, promising to bring his son the next day, and help to carry the remaining luggage from Tschongai. But when the morrow came he arrived without his son, and declined to assist the other men at all, saying his station was only from Kitsa to Pulozero, a proceeding he did not find profitable in the end.

We caught some good trout during our stay, and they formed a pleasant change from tinned food. All were taken on a small salmon fly; they would not look at ordinary trout flies. Mr. Witherby caught a salmon of 15 lbs. here in 1899, but the Kola cannot be called a salmon river; the bulk of the fish go up the Tuloma.

May 31*st.*—We shot the first Three-toed Woodpecker to-day, a female containing an egg nearly ready to lay. This was the only Woodpecker we saw, although we heard the birds several times. Witherby reports them as very common from Kandalax to Kola, which shows they vary considerably in numbers in different seasons. Pleske says that *Picus minor* has been shot at Kitsa, and *Dryocopus martius* at Kandalax, but Witherby did not see either species. Musters had been out alone in the morning, and found a Lapp Tit's nest he could not reach, so we sallied forth after dinner, armed with the necessary tools. We rapped on the tree sharply, but the bird sat close for some time, and only left when we had nearly reached up to the hole. Heavy blows on a tree are useless, they only frighten the bird; but if you scratch with your nails on the bark, like a cat climbing a tree, the bird will generally come out. The nest was in an old hole of a Woodpecker (as were all we subsequently found), and quite eight feet from the ground; so that our first proceeding was to cut down some birch and build a platform to stand on. Then the hole had to be cut out with gouges, a work of some time. It was wonderful that any bird could have bored through that hard firm wood with its beak. When taking Tits' or other small eggs the cavity should be first filled with cotton wool, as chips are liable to fall in and crack the eggs. At last the hole was sufficiently enlarged to allow a salt-spoon, tied to a stick, to be worked inside; and seven eggs were safely extracted, the first we had taken of this species. The bottom of the nest was of moss, and over this was a thick felted mass of lemming-hair, making a beautifully warm bed. Musters had seen the male carry in some of this hair in the morning; and was therefore afraid the eggs were not yet laid. The female kept close to us all the

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WHIMBREL'S NEST.

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time we were at work, sometimes within a yard of our heads. Lapp Tits are amongst the prettiest of the family. We then went to another nest of the same species we had found on the 29th. This was in a much smaller fir in a marsh, and only five feet from the ground. It contained three eggs, and was made of similar materials to the last.

In the country on the north side of the hill we had climbed last night, we found birds more plentiful, as they generally are on this aspect during the breeding season. The only nest we saw was a Rough-legged Buzzard's in a dead fir that looked very doubtful as to its power to bear a man's weight; but it stood the strain, and the five eggs were brought safely to ground.

June 1st.—A Lesser Black-backed Gull arrived to-day and hunted over the river some time for fish. As the nesting season was advancing rapidly, we were anxious to push on to our headquarters at Pulozero, and decided to leave Kitsa to-day, in spite of three cases of provisions still remaining at Tschongai. This afterwards proved a mistake, for they contained some important items, and it was a long time before we recovered them. It is a golden rule, that should never be departed from on these expeditions, always to see the whole of your possessions in front. All behind is beyond control and may not be seen again.

The river is navigable for two versts above Kitsa, and then a series of rapids necessitates a walk of three versts; after which there is an uninterrupted stretch of the river for fifteen versts up to Murdozero. This stretch of water is called Murdozero lake, but much of it is really little more than a wide part of the river, and there is a distinct current all the way. The first boatload left Kitsa at 1 p.m. Musters and I crossed the Kitsa river (which had fallen more than two feet since our arrival), and walked to the point above the rapids. Considerable delay was caused by the men having to go three times with loads over the portage, so that it was 9.30 p.m. before the work was finished. While we were waiting for them, a Russian came down

the river in a boat rowed by two Lapps, and we soon learnt that he had been sent to look after us by the telegraphist at Pulozero, in answer to urgent telegrams from Mr. Skjœrseth. The man had left that place in a boat, but had been stopped by ice on the lake after rowing five or six versts, and was obliged to walk round the lake to the lower end where he had picked up the Lapps. This man turned out a jewel of the first water, and was our constant attendant during the next month. As his was the better boat, we decided to take it, after a little argument with his Lapps who asked five roubles each to row back, and accepted two. I mention these little matters of prices as some guide for future travellers in their dealings with this class of men. From my experience of Russian Lapland, the rouble is the cheapest thing there. I have known men ask five roubles for a salmon, and then take a small bucketful of potatoes in exchange. Mr. Skjœrseth explained that the men earned so much money in winter they hardly knew what to do with it, for their wants were few.

Our new men worked well. The Russian and one Lapp, rowing on the front seat, joked and laughed all the way, while the other Lapp steered with an air of importance, as if he were in charge of a 500-ton ship. He steered splendidly, and never lost a foot; very different to the old rascal in the second boat who wandered sweetly anywhere and everywhere, all the time talking and boasting. The consequence was his boat was soon far behind, and finally arrived an hour after we did.

The Lapps stopped on the way to show us a duck's nest, which turned out to be another Goldeneye's with four eggs. This tree had been used so long that three successive holes had been cut to reach the eggs. We heard from the men there was a large nest on the top of a tall pine tree a short distance ahead. The description pointed to an Osprey's, and raised our hopes unduly, for on reaching the tree the bird proved to be a Merlin sitting on some old nest—probably a Hooded Crow's; a serious disappointment, slightly relieved by the safe arrival on the ground of five fresh eggs of the usual dark type.

We saw a number of Lemmings swimming over the river; and the Russian told us that round Pulozero this spring there had been great numbers, which had now gone towards the north. Musters caught sight of a male Tufted Duck *Fuligula cristata* apparently wounded, as the bird did not attempt to fly away but only stretched itself flat on the water as the boat approached, without sinking its body. The species has not been previously recorded from this district, though Pleske mentions it at Kandalax and near Kola, the two extremities of the route. Common Scoters were very numerous on this part of the river. On reaching the landing-place at 2.30 a.m. we found the only hut full of men women and children, and a party of men from the sawmill at Kola asleep in the wood under a calico sheet. That hut was clearly impossible for us, although our men afterwards found space on the floor somewhere, so we made a fire and cooked supper in the open. Unfortunately, rain began soon after we lay down, and the splash of the raindrops on my mackintosh became irritating in time! None of us got much more than four hours' rest, for these pine-trees give absolutely no shelter.

June 2nd.—After paying off our two Lapps, from whom we were very sorry to part, we walked across the three versts separating Murdozero from the bottom end of Pulozero lake, as the river is here a series of rapids. The rain had now cleared off and the sun soon made walking with a load anything but a pleasure. As the men had to cross three times with the luggage, and there was some delay in getting the boat ready, it was 6.15 before a start was made on the lake. Pulozero lake is 15 versts long, and our Russian said 10 versts were still covered with ice, which would oblige us to walk 15 to 18 versts round the shore, not at all an agreeable prospect. The small birds were beginning to nest; we saw a White Wagtail and Reed-Bunting, both building. I thought I had secured another Lapp Tit's nest, but after cutting out the hole in the tree, found it was a Redstart's with two eggs. For the first two or three versts the lake was open, but on turning a corner, miles of ice stretched

before us, very rotten, but looking quite impassable; the old winter road was still marked on it by a series of young fir-trees fixed together in threes. If the timber were of any value the waste of young trees in marking these routes afresh every winter would be considerable. There appeared to be a little water in places between the land and the ice on the west shore, so we made for that; what wind there was also coming from that direction tended to keep the ice off. Then followed some hours of hard work, sometimes rowing, at others towing from the shore, or breaking through those parts of the ice which were still attached to the bank. Our wretched steersman did not lighten the work of the other men, yet when we were at last through our difficulties, he of course claimed the chief credit! Musters and I walked much of the way, and were struck by the almost total absence of birds; they do not seem to frequent the central parts of the shores of these large lakes, but prefer the ends where there is running water. The last five versts were free from ice and we reached Pulozero at midnight, delighted to have finished our travels for the present. The telegraphist, M. Vortsekovsky, was still up, and received us in full uniform. He not only gave up to us the best room and put together a second bedstead, but bore with us patiently while we removed into his room various articles of furniture which were more ornamental than useful, and took out the double windows, to admit fresh air for the first time since the previous summer. A very short experience of our new quarters showed that we were indeed in clover, and we had much cause to congratulate ourselves on finding such comfort in this wilderness.

The station of Pulozero stands on a high bank at the head of the lake of that name, and was built in 1896 or 1897, when the telegraph line was erected from Kola to Kandalax, under the orders of Governor Engelhardt, who had personally surveyed the whole distance [1] (I think in 1895). A telegraphist and three men are stationed here in charge of the line, who have to trace out and make

[1] "A Russian Province of the North," pp. 92–106.

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good any damage that may occur to it in their district. Accidents from falling trees have been guarded against by cutting down all those for some distance on either side of the line, which thus runs down a broad avenue. The new station stands at the junction of the summer and winter routes which divide here towards the south for some distance, the former going near the Kola river—too rough here for navigation—to the bottom end of Lake Kolozero (ozero = lake), and the latter over a line of marshes and lakes to the top end of the same lake. The old summer station was at Masala (Maselsky: Rae), a small promontory on the eastern side of Lake Kolozero (Guolle Yaur, or Fish Lake: Rae) and ten versts from its lower end. Its site is still marked by a wooden hut. The winter station is called by Rae, Maselsîd, and is situated on high ground ten versts from Pulozero. This is also to be removed to Pulozero shortly, and most of the Lapp families who now inhabit Maselsîd in the winter will probably follow to the new official station.

Plate 53 shows the telegraphist's house, which became our headquarters during the next month. To the left is the rest-house provided for the men of the transport station; and the building to the right behind the woodstack is a bath-house.

June 3rd.—After unpacking and settling down we went to a large marsh and lake, four versts south from Pulozero on the telegraph line. Birds were not so plentiful as we had hoped to find them, still there were a fair number of Ruffs, Wood-Sandpipers, and Whimbrel. I flushed one of the last off a nest with four eggs placed quite in a hollow beside a pool of water (see Plate 54). We also saw several Bean-Geese but did not think they were nesting here. After much walking over heavy ground we turned for home through the woods, finding a Fieldfare's nest with six eggs and a Lapp Tit's with five, and disturbing a male Spotted Redshank and two pairs of Greenshanks in some small marshes on the hillside.

Of course a pair of White Wagtails were about the house—I do not remember a group of Lapp huts without them—and eventually

built in the woodstack. Several pairs of Grey-headed Wagtails frequented a small marsh near, and a pair of Skylarks singing every day sounded very like home. Other birds noted here to-day were Redwing, Wheatear, Redstart, Meadow-Pipit, Swallow, Mealy Redpoll, Reed-Bunting, Brambling, Willow-Wren, Raven (one or two seen most days), Golden Eagle (one immature bird passed near the house), Cuckoo, Wigeon, Goldeneye, Pintail, Common and Velvet Scoter, Ringed Plover, Golden Plover, Common Sandpiper, Common Snipe, Arctic Tern, and Common Gull.

The first birch leaves were out to-day, and a few days after the hills were clothed in their beautiful light green. When once the leaves begin to unfold, the progress is so rapid that one can almost see it. In 1899 we first saw the leaves on June 29th near Pechenga gulf, and in 1901 the buds were only swelling when we left Lutni on June 17th, but those were exceptionally late years. A sharp thunderstorm with heavy rain passed over in the morning, some of the flashes appearing to be quite close to the house. We congratulated ourselves that the storm had not come the day before when we were sleeping in the open.

June 4th.—We spent seven hours looking after those Greenshanks and Spotted Redshanks seen yesterday, with no result. A Teal's nest with six eggs was on dry ground above the small marsh. Two Yellow Buntings *Emberiza citrinella* were about the house to-day and remained during the summer; they were the only ones seen, whereas Mr. Witherby found this species fairly common in 1899.

June 5th.—As Maselsîd was one of the places where the Bar-tailed Godwits bred in 1899, we were anxious to visit it and find out whether they had come again this year. Our guide took us a very good way over dry ground to the left of the lakes we went to yesterday, and brought us back by a villainous route on the opposite side. Maselsîd is a very old settlement of the Lapps, as shown by the herbage round the houses; and occupies a knoll, with three lakes in the immediate vicinity, two of which yield a good supply of fish.

The grass was the first seen since we left Kola, and the telegraphist sends men here every year to make hay, it being his only source of supply. Although this was the first week in June, the grass had not commenced to grow, but was still brown and withered with the winter frosts; our man burnt off the coarser parts, a forethought for which we had not given him credit. Most of the houses were in a ruinous condition exhibiting every stage of decay and dirt; but that belonging to the principal man showed more signs of comfort, and to it a new room had recently been added, of which we promptly took possession. A storehouse raised on four posts three feet above the ground had a good padlock on the door, and the church shown on Plate 56 was secured in the same manner; all the other buildings were left with no fastening beyond a piece of string.

Just as we arrived a Hooded Crow passed over and two Godwits rose at it; but they did not return, and a long search failed to show any sign of a nest. These were the only pair of Godwits near Maselsîd this season; Mr. Witherby had seen several pairs here in 1899. We saw one of them again on subsequent occasions, but it never showed interest in any particular spot, and we came to the conclusion they had been disturbed either by the Hooded Crow or the Raven, which hunted over this district most days. A fine fox passed near Musters while he sat watching for the Godwits, and went within a few yards of a Whimbrel on four eggs, but the bird sat close and the fox did not see her.

A Short-eared Owl *Asio accipitrinus* came round the huts while we were at lunch, and we saw it often on later visits. This was the first Owl of any species we had seen in the country this year, a surprising fact considering the number of Lemmings about. After lunch, Musters went down to the large lake, where he counted over forty Scoters, chiefly the common variety; a pair of Wigeon were there also, and two male Long-tailed Ducks fighting for a female. In the marsh at the head of the lake a number of Ruffs were "hilling," one of them in a beautiful white ruff. I turned towards the upper lake, a

long narrow piece of water with many islets. A pair of Red-breasted Mergansers settled near me, and a few Teal were feeding, while two Divers rose in the distance; but there was no boat on any of the lakes, so we could not explore the islets. We saw one or two Spotted Redshanks, and heard their very distinct note repeatedly. Some Golden Plover were near both lakes, but did not seem to have paired yet; very few of the small birds had arrived, and we only noted Meadow-Pipits and Willow-Wrens near the lakes.

The homeward way was not only through deep marshes, but also over a district which had been devastated by fire some fifteen to twenty years before, judging from the size of the young trees. Birds were remarkably scarce, even for these woods, a fact we noticed on several other occasions in large burnt tracts. I think it is probably due to the complete destruction of insect-life by the fire; for plants and insects are very slow in re-occupying their ground in these arctic regions compared with tropical countries. I never saw a fresh Woodpecker's hole in any partially burnt pine-tree, and I must have examined many hundreds and almost thousands of trees, during our stay in the country.

The only eggs seen during the day were a clutch of five Fieldfare's in a nest on the top of a pine stump three feet high. The nest and tree were the same diameter, and although a mass of woven grass-bents might be thought to form a conspicuous object in such a position, it was not so easily seen. Nearly a week of "summer" had already passed, yet we noticed flowers for the first time to-day, a few white multibœr on sunny spots in the drier parts of the marshes.

June 6th.—The weather yesterday had been splendid with a warm bright sun that made us think summer was really coming, but to-day was cold and dull with a strong north wind. We crossed the river to the west side, in the vain hope that birds might be more plentiful there. A few Bramblings, one or two Willow-Wrens, a pair of Wheatears (the first seen at Pulozero), a Greenshank, and a Spotted Redshank, formed the chief items. The only nest found was

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a Fieldfare's in a young spruce, with five fresh eggs. Two Arctic Terns sat on a hillock in a pool, looking as if the north wind was too much for them. A small flock of these birds came to fish two or three times every day over the lake opposite our house. We saw an old nest of some bird of prey—probably a Buzzard—in a pine-tree, the first sign of this class of birds breeding here.

June 7th.—One of the men at the station said he knew of a small Hawk's nest a verst from the house, so I went after breakfast with him to see it, expecting to find a Merlin's. We did not want Merlins' eggs, for we had already taken them in the district; still it is a great mistake to damp the enthusiasm of the native, and the nest was only a verst off! On our arrival there I found the nest was in a hole in a large dead pine, and the bird a Hawk Owl! This is a good instance of the reliability to be placed on nine-tenths of the ornithological information received in these countries. I am often amazed at the prices paid at auction, or to dealers for eggs received in the first instance from natives whose knowledge may be illustrated by this incident. Dead pines retain their bark for some time and then appear to shed the whole of it during one season; after which they are as smooth as a flagstaff; and as this tree was almost too large to grasp, the Russian had difficulty in getting up even with my climbing irons. There were two holes, one eighteen feet from the ground and the other six feet above that. The tree slanted considerably, and both holes were, as usual, on the lower side, so that he found it impossible to reach round far enough to insert his arm to the bottom of them. To add to the man's troubles one of the old birds flew at him repeatedly and hit his head smartly three times with its wings. Climbing irons being useless a ladder seemed the only hope; so we cut down two young firs and fixed five staves—rather far apart!—with the ten nails his fishing station on the lake below afforded. The man mounted the crazy ladder to the lower hole and reported five eggs, so up I went to "lift" my first clutch of Hawk Owl's, but the first egg I brought out was a blue one!—a Goldeneye's. I left the man to

extract the remainder as the ladder was more fitted to his weight. After much trouble he reached the upper hole and took out a young Hawk Owl just changing from down to feathers, so the anxiety of the old birds was explained. Leaving the men to build the ladder, I had strolled up the valley and found a Lapp Tit's nest in a pine tree, with seven eggs slightly incubated. The male came and fed the female in the next tree a few feet off while I was cutting out the nest.

We had probably a unique experience to-day, for Musters went bird-nesting accompanied by two tame reindeer which persisted in following him for three or four miles, until he finally left them asleep beside an empty Reeve's nest, from which he had taken four slightly incubated eggs. I was joined in my fishing excursion by a tame Bean-Goose which saw us start in the boat, hurried down the bank, and swam after us like a little steam-tug, the water mounting half-way up her neck. When at last she caught us up she swam close to the boat for more than half-an-hour occasionally tapping at the side with her beak. This bird was devoted to our Russian, who was rowing, and followed him everywhere about the place. The telegraphist had received two young birds (both, I believe, females) the previous season from another district, and had kept them during the winter under the kitchen-table surrounded by some wirework. Now the bills of these two birds were very similar in colouration to those figured by Mr. Frohawk in the *Field*, October 4th 1902, as *Anser segetum*, while that of May 22nd had even less black than he shows on his *Anser arvensis*. Musters shot another Bean-Goose on June 20th at Maselsîd with bill intermediate in colour between the live birds and that shot on May 22nd. This bird did not appear to have commenced to breed. The bird of May 22nd measured $2\frac{1}{4}$ inches on the culmen. The bill of another bird (female) shot June 26th 1895, at Lutni Russian Lapland, is also intermediate in colour between those depicted in Mr. Frohawk's two illustrations, and measures $2\frac{3}{8}$ inches. She had three young in down with her; and the bill of one of those we caught is all black except the nail, which is white.

I have had far less experience of these birds than Mr. Frohawk, still I cannot resist expressing the opinion that *A. segetum* and *A. arvensis* will ultimately prove to be the same species, at different ages.

The first Brambling's nest was found to-day in a spruce, with one egg. Their earlier nests were generally in these trees, as the birch leaves had not opened sufficiently to afford them any shelter. Musters spent the whole day in attending to the Spotted Redshanks and Greenshanks, but without result. He had seen a Great Grey Shrike, Black and Red-throated Divers here for the first time. One of our Lapp boatmen came at night, having rowed ten versts up the lake to bring us nine eggs of the Goosander, taken from a hollow tree, and two fine pike for the telegraphist. He had kept the down for bed-making, but promised to bring it when he heard the eggs were useless without it, and this he afterwards did. Both pike and perch are common in some of the lakes here.

June 8th.—As there were no Godwits about Pulozero we decided to spend two or three days at Maselsîd and try to learn more of the pair we had seen there. Taking two men to carry blankets and food, we arrived in three hours, and "camped" in the room already mentioned. After lunch we walked round the small lake near the huts and struck up towards the north-east to another marsh, as we had seen one of the Godwits fly in that direction on our last visit; but there was scarcely a bird on the marsh. A fox and a buzzard on the other side were so much engaged in watching each other, they took no notice of us. We then turned into a wood on the ridge near and found a colony of Fieldfares. All the nests contained five eggs, each in similar stages of incubation. Those birds we had found breeding at Pulozero had not laid full clutches, though that place is at a considerably lower level. Only one nest of this species found in 1903 contained six eggs, and all the Redwings had five, whereas in 1901 and previous years both species generally laid six, and in some instances seven. I was told on my return to England that passerine birds here had generally laid short clutches this year, so that the

desire to reduce the size of their families was general. One man returned to Pulozero that afternoon; directly after leaving the hut he shot a female Common Scoter on the lake near, and secured it by means of a crazy old raft. This shot brought up a female Godwit, which called at us a little and then flew away towards the north-east. The next day she was chasing a Hooded Crow, after which she again flew clear away. We saw no other Godwits during our visit. The hours we spent searching for that bird's nest! We took the ground in sections that we thought she came from when the gun was fired, and went over every yard of it; nor did we neglect any likely spot for a mile round. A Common Teal had eight eggs under a dwarf spruce; they were slightly incubated.

June 9th.—To-day we divided, taking different directions. Both saw a pair of Spotted Redshanks and a male of the same species feeding near the lake next to the house. Musters watched them more than two hours without result. This bird was almost as scarce as the Godwit here. The only nests seen were two Reeves' and a Whimbrel's.

June 10th.—After the lovely weather we had experienced for some time, to-day came as a most disagreeable change. It spotted with rain when we turned out in the morning, continued as a heavy "Scotch mist" all day, turned to sleet in the evening, and snowed all night and all next day up to 6 p.m., by which time the snow lay eight inches deep in all the sheltered places. We went down to explore some large marshes towards the south that Musters had seen the day before, but found little on them beyond a few Whimbrel and Snipe. Two Broad-billed Sandpipers *Limicola platyrhyncha* rose near us, the first seen here. I fear they had cause to be thankful no gun was out to-day.

We had a good laugh at Juno; she had had a heavy day yesterday, and not liking the look of the weather, turned for home soon after we started, with tender recollections of the Russian's down-bed she had recently quitted. But, alas, she had not taken into account the fact that we fastened the door when we left! She met us at

F. 44. 10 *S.* 3.45 *p.m.* 14-6-03.

NEST OF MOTACILLA VIRIDIS.

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night a mile from home, wet, and very glad to see us. Whilst we were at dinner the man ran in to say a cock Willow-Grouse had called, he was sitting on one of the other huts, and stopped to dinner—*our* dinner—next day.

June 11th.—This was one of those days when a Lapp hut with a good fire is much more appreciated than the best of tents. I turned out for three or four hours in the afternoon in the hope that Waders' nests would be visible in the snow, but found nothing beyond a Redwing's with four young and one egg. In the evening the sun came out and shone over a thoroughly winter scene, relieved only by the green of the young birch leaves where the snow had fallen from them. Plate 55 was taken at 8.15 that night, when the sun had already begun to affect the snow on the roofs. Plate 56 was taken at the same time, and represents the village church with part of what we called the home lake behind it. The mountains around Lake Imandra stood out splendidly in their white covering against some dark clouds. Later in the evening there was sharp frost in spite of the sun, and icicles a foot long hung from the eaves of the houses. A male Snow-Bunting stayed about the place some hours, probably driven out of his course by the storm, as there was no breeding-ground for him within many miles.

I lay sleepless in my hammock for hours, partly on account of our Russian, who was the finest snorer I ever met or wish to meet, and was just dozing off about 3.30 a.m., when a Lapp walked into the room and seated himself on the hearth. He explained that our thoughtful host had sent him with twelve or fourteen reindeer to take us home, as he knew our food must be low, and feared the snow would stop our return. All three of us were promptly out of bed, and after a good meal which practically exhausted our supplies, we started in three sledges at 5.15. This was a new experience for both of us, and although there was not sufficient snow to cover the humps and tree-stumps, we saw enough to learn that under proper conditions it must be one of the most delightful forms of travelling. So Juno thought

who persisted in riding, even over the rough places where her master walked, until she had been pitched head first into the snow once or twice.

June 13th.—We found a White Wagtail's nest to-day with five eggs inside an old Fieldfare's nest built in a spruce near the river; also, those of two pairs of Grey-headed Wagtails with six and five eggs in a marsh behind the house. The latter is shown in Plate 57. Four yards from it on the side of a hummock was a Meadow-Pipit's nest with six eggs. This bird was one of the commonest in the district, and we found its nests constantly during our stay. Three nests of the Reed-Bunting all contained six eggs.

In the evening the telegraphist took me to some large marshes we had heard much of, said to be five versts off; but three hours and a half were occupied in getting there. We had to cross a large lake, with stony banks two to three feet high, in a boat which reminded me of those we had suffered from in 1899. The marshes extended a mile; and were generally dryer than usual. I fear the word "marsh" conveys a poor idea to the general reader, who pictures a combination of water rushes and other aquatic plants. The word denotes in this part of Russia a tract of country which is too wet to support trees, and is covered by a variety of mosses and low-growing plants. Again we were disappointed, for there were only a few Whimbrel, Snipe, Teal, and Wigeon. My guide said that during his stay in the country he had never seen so few birds about as this year. One of the men found a Willow-Grouse on twelve eggs, and shot her; the cock had a narrow escape. The man carried a 16-bore breech-loader, and used it with effect on several occasions. During my absence Musters had caught with a spoon bait three good trout between five and six pounds each.

June 14th gave nothing to record, beyond a Lapp Tit's nest with young and eggs. We patched up the hole with bark, and the bird at once returned to the nest. The Brambling's nest, found a week since with one egg, had now seven.

June 15*th.*—Many Bramblings and Mealy Redpolls had come during the last two days; some stretches of woodland were full of the latter. We spent the day at the marsh visited on the 3rd, and found more birds there. The Reeves' eggs were now considerably incubated. Their positions varied, some being on dry ground, and others on bogs where we sank above the boot tops. A Tufted Duck had nine fresh eggs on very wet ground close to a small stream; under the eggs was last year's nest with the hatched out egg-shells. When returning we noticed a Black-throated Diver on a small lake carrying its head low as if trying to hide. Musters stayed behind to watch, and soon after saw the other bird go on to the nest on the other side of the lake; there were two fresh eggs within six inches of the water.

June 16*th.*—A range of hills on the opposite (western) side of the lake, which rose above the limit of tree-growth, had aroused my curiosity since our first arrival; for they seemed to have great possibilities of Dotterel, Buffon's Skua, and other birds, so I decided to visit them to-day. One man said it was five versts to the first hill, another eight! Musters expressed a faint hope he should see us again the next morning. Accompanied by two men I started at 2.15 p.m., reached the top of the first hill at 4.5, and the third at 5.15. The first is 680 feet, second 710 feet, and third 1110 feet above Lake Pulozero. From the last I had a very fine view over many miles of country from the hills about Kola to beyond Raz-Navolok on Lake Imandra. Below were many lakes of all sizes, but not a bird on them as far as I could see with my glasses, certainly not a Swan. The scenic effect was heightened by some grand storm-clouds sweeping over, and sprinkling us with snow at times. Reindeer had fed over all the high ground and eaten the reindeer-moss down almost to the roots. We worked those hills well, walking in line over the parts above the trees, which ceased at an elevation of about 550 feet, but not a bird did we see, though much of it looked like good Dotterel ground. Other hills towards the north rose to a higher elevation, but after the absolute failure these had proved, I did not feel inclined to

explore them. I noticed some large moraines between the second and third hills. The only eggs were a clutch of five Meadow-Pipits on the edge of the tree-line. An old nest of the Mealy Redpoll in one of the highest bushes confirmed our experience at Lutni that they breed as high up as the scrub extends. On our return at 9.15, I heard Musters had had equally bad luck. Both Greenshanks and Spotted Redshanks were absent from the places where we had seen them before, and he had found nothing except a nest of young Fieldfares.

June 17th we spent again on the large marsh to the south, and saw some Red-necked Phalaropes for the first time here. The chief find was a Grey-headed Wagtail's nest with seven eggs, an unusual number.

June 18th.—Bramblings are irregular in their time of nesting, for while some had laid up and commenced to sit, others were now building. The species was very common round the head of Pulozero lake, and suffered considerably from the crows or some similar robber, as we often found that nests we had marked were rifled. Nearly half the nests we took contained seven eggs, so the cause of small clutches in the Fieldfares did not affect the Bramblings. The first Willow-Wren's nest was seen to-day.

June 19th was too wet and close most of the day to do anything besides fish, so we filled our larder and that of the telegraphist. A Sedge-Warbler was singing some time near Musters, by the river; I had seen one two days before on the large marsh. In the evening I went over the hill to the lake near which the Hawk-Owls had their nest. A male Tufted Duck was feeding in the shallow water at the head, and his mate was sitting on nine eggs near the other end. The nest was prettily placed on a little spot of land, and would have made a good photo had the camera been there. A pair of Red-throated Divers seemed anxious, but had no nest on my side of the lake; their eggs were not sufficient inducement to make the circuit of the other side, so I left them and the duck to hatch out in peace. These Divers were scarcer than the Black-throated here; we expected to have seen more of both where lakes were so numerous.

F. 44. 5 *S*. ½ *L*. 3.40. *p.m.*

RAZ-NAVOLOK STATION.

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25-6 03.

June 20th. — We paid another visit to the marshes at Maselsîd to-day. On our arrival Musters disappeared for two hours, and at last returned from the top marsh with a Bean-Goose, a male Spotted Redshank and his four young in down, one or two days old. This was a dreadful blow, for it showed the time had nearly past when we could hope to obtain one of the chief treasures we had travelled so far to find. The fact was that 1903 proved to be a year absolutely devoid of "luck," a most important factor in the success of an expedition. There are years when good things are secured with an ease and frequency which almost lead you to believe they are due to your own ability; and there are others when you may work most of the twenty-four hours in each day and take nothing worth having. As far as I know, only two Englishmen have taken the eggs of the Spotted Redshank, viz., Wolley and Meinertzhagen. Mr. Dresser quotes a letter from the former to Hewitson in "Birds of Europe," vol. viii. p. 171, in which Wolley says: "The nests I have described were found quite by good luck." Meinertzhagen, who found eggs of this bird on June 5th (p. 26), says nothing of the "luck," although I strongly suspect it was present. Wolley's statement removes much of the sting from our failure, and leaves only a hope for better fortune on our next endeavour to secure eggs of this bird. Musters said that the legs of the Redshank were a brown-black with a touch of Indian red down the sides when he picked up the bird immediately after shooting it, while the male birds he saw at Kola had orange-red legs, and those he had often seen in Norway on migration in August had also orange-red legs. Meinertzhagen reports (p. 79) that the incubating bird was a male, so possibly this change of colour has some protective advantage during incubation. In all three cases when we secured young in down of this species, the male bird was in charge and the female never appeared on the scene. He had a black bill with a patch of red at the base of the mandible; the iris was nearly black.

Musters had seen fourteen geese in one flock and four in another, all Bean-Geese. A Grey-headed Wagtail whose nest we found on the

17th with four eggs, had still the same number and was sitting. Flowers and butterflies were now becoming more common; many white *pinguicula* had opened their delicate little blooms and with the pink *andromeda* relieved the dreariness of the peat, while the *trollius* showed colour near the houses. Still this certainly cannot be called a land of flowers; they seemed to be fewer both in numbers and species than in any other part of Lapland.

On the 21st we found a nest with three eggs of the Spotted Flycatcher *Muscicapa grisola* the first indication of its presence here. Pleske records this species from Lake Imandra and Kandalax. Mr. Witherby saw one pair of the Pied Flycatcher on the south shore of Lake Imandra, and Musters thought he heard its note at Pulozero, but we did not see the bird.

June 22nd.—As all our efforts to find a nest of the Bar-tailed Godwit at Pulozero had failed, we decided to go to Raz-Navolok to-day and see if the species was breeding there. The distance from the head of Lake Pulozero to Lake Kolozero is said to be four versts, but it took us quite an hour, walking at a rate of nearly four miles an hour. I found the latter lake was 60 feet above the former by aneroid. Leaving Pulozero at 1.40 p.m., we started on Kolozero at 2.50 and traversed the fifteen versts to the head of the lake in two and a half hours, sailing part of the way. Then came another tramp over the short verst which divides Kolozero from Lake Pereyaver and forms the watershed between the Arctic Ocean and the White Sea. We were glad to find that Mr. Witherby's flies had not yet appeared on the scene, nor did we meet with them on our return. Pereyaver is the Lapp, and Permosozero the Russian name of the lake, while Rae gives it as Pieresozero. We started on this lake at 6 p.m., and assisted by a good breeze most of the way, completed the twelve versts at 8.10 p.m., and then stopped for a meal. A good dry path across the next portage made its four versts appear short ones. Just before reaching Lake Imandra, Juno put up something a few yards from the path, and rushed off after it; then returned to assist in the search and "set" a

Capercaillie's nest with seven eggs nearly ready for hatching. The nest was on rather damp ground and thinly covered with juniper scrub.

There is a good hut at the head of Lake Imandra where the river Kurenga (Koro : Rae) enters it from Lake Pereyaver ; and good fishing also we heard, confirmed by a small Lapp camp with nets and boats a little lower down. A bitterly cold north-east wind, which brought several heavy showers of rain, took us rapidly over the fifteen versts of water to Raz-Navolok, where we arrived at 1 a.m., starved through. The station consisted of one wooden hut, shown on Plate 58, and two small turf——. I find it difficult to select an English name which will convey any idea of these human residences, and therefore refer the reader to Plate 14, where he will see two similar "houses" to the left of the picture. As I opened the door of the hut, a puff of air met me which seemed quite strong enough to take a wasp nest. A man and his wife were asleep on a wooden bed in one corner, and a young man on another in the opposite one. However wind and rain clearly showed we must join the party. All got up at once to welcome us, and made a good fire which cleared the atmosphere a little— most important item —restored us to a reasonable degree of warmth, and cooked our supper. I counted twelve people in that hut whilst we were eating. At last some of them cleared out and we fixed our hammocks up, but the fame of these new beds spread, and we had an admiring audience of four women besides men to see us in them. Finally the man and woman returned to their bed, two of our men joined the young man in his, and we swung between them. The lady and her husband are depicted in the left of Plate 59 and the youth to the right.

June 23rd.—Our Russian had lived at Raz-Navolok for some time as one of the station hands before he was employed on the telegraph, so he knew the country. He took us over a well-marked path to the winter station which lies some little distance from Lake Imandra. This is a place of much greater importance than the summer one, and consists of a church, three large houses of two

storeys, and a number of Lapp huts, many of the last much decayed. The three houses have been erected by Government for the use of the seamen on their annual journeys north and south. These men leave their ships in the fjords on the northern coasts of the country, and sledge overland to their homes in the towns round the White Sea, to spend the winter with their families. They return north to their ships in March, and are thus able to get to sea about two months earlier than if they waited for the ice in the White Sea to break up. At the time of our visit the whole place was uninhabited.

A large marshy tract extends for nearly a mile from these houses to the lake below. Birds were numerous here, Wood-Sandpipers, Whimbrel, Golden Plover, Greenshanks, &c., objecting strongly to our disturbing them; but we had travelled over more than half its length before we heard the note of the bird we had come for. A male Bar-tailed Godwit, in his handsome breeding plumage, was sitting on a pine-tree, giving out loud angry notes. I shall not attempt to reproduce them, because most of the efforts to print intelligibly the notes of birds have appeared to me such dismal failures I prefer not to join the band of interpreters. This bird behaved very differently to those we had seen at Maselsîd, and it was at once quite clear that he was part owner in a nest not far off; but where? We tried for some time to discover what particular section of the marsh he was most interested in; this failed utterly, partly through preconceived ideas of what his behaviour ought to be. Then Musters devoted himself to watching that bird, while I took a part of the marsh I thought the most likely to contain the nest, and searched it yard by yard, and our two men wandered hopelessly about. After this had gone on for an hour and a half the Russian went off into the wood near; and on his return, as he emerged from the fringe of small trees forming the edge of the wood, he nearly stepped on the hen bird, which rose with cries even louder and more angry than those of the male, from four young, hatched certainly within the last twelve hours, for the remains of the egg shells still lay in the nest. And we had come for

F. 22. 1/2 *S.* 3.45 *p.m.* 27-6-03.

OUR BOATMEN FROM RAZ-NAVOLOK.

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eggs, not young in down. If that was not a trying moment to the temper, I leave fellow-ornithologists to imagine one !

Professor Newton writes to me that Wolley never found the eggs of this species himself, therefore Mr. H. L. Popham appears to be the only Englishman who has done so (*Ibis*, 1897, p. 105). He took four nests on the Yenesei river in 1895, two with eggs and two with young ; but found none there in 1897. Mr. Witherby also caught two young in down on July 16th, and saw four more on the 23rd, and thought they were then about a week old. In both cases the male bird was in attendance, while Mr. Popham found him so in three out of the four.

The other man had been within a few yards of the nest, but the female had not stirred. When we knew its position we were able to trace the action of the male during the whole time we had been on the ground, and found it corresponded very closely with that usually taken by the male Black-tailed Godwit under similar circumstances. A few pines—chiefly dead—were scattered over the area where we first disturbed him, and he perched on these, screaming loudly, until the man went near the nest, when he came down to the ground and redoubled his cries ; on several occasions he flew towards the nest in front of the men. In fact, if we had only understood his procedure, he completely "gave the show away," behaviour very different to that of the Greenshank and Spotted Redshank. Of course this was probably due to our having disturbed the pair during the interesting period when the young had just been hatched ; and it is absurd to deduce general rules from one pair of birds. Still I think it will be found that the two species of Godwit act very similarly when they have a nest ; and those accustomed to the ways of the Black-tailed will have little difficulty in locating the nest of the Bar-tailed species.

One of the young was still in the nest when I arrived at the spot ; we caught the other three a few yards off after considerable trouble, and replaced them in the nest, but it was impossible to keep them quiet until Musters shot the old birds. An hour and six films were

wasted before I took the photograph reproduced in Plate 60. Rain and mosquitoes added considerably to my troubles, and much patience was necessary. The nest was placed on a hummock of green moss, and was of a deep saucer-shape, deeper than a Whimbrel's. It was lined with lichen and dried moss. Although not shown in the photograph, a little scrub gave the sitting bird partial shelter. The legs of the young birds were a wigeon-grey colour, and those of the old birds nearly black. Neither of the old birds had any incubation spots.

On our return to the station at night a telegraph official, passing through to Kandalax, immediately recognised the bird, gave its Russian name, and said it was found in dry marshes. No other native knew it, all called it a Whimbrel.

And this was all we saw of the Bar-tailed Godwit at Raz-Navolok!

June 24th.—Having found only one pair of Godwits, we asked for more marshes, and were taken to some beyond those visited yesterday. These did not hold nearly so many birds. The only prize secured was a male Spotted Redshank with his three young in down. The old bird was calling, and evidently very anxious, in a marsh at the end of a lake, so we promptly shot him, as it is quite useless to try and find the young while the old bird is crying round. Even when only hatched a few hours, the young of all Waders appear to scatter at the first note of alarm, and then squat absolutely still until they receive further orders. These tactics much reduce the chances of an enemy securing all four. I am convinced by many hours of watching that the old bird is to some extent able to direct their subsequent movements. When danger is imminent they are told to remain still, but as soon as it appears to have passed a little, they are led to a safer spot; and they creep through the slightest cover like a mouse, taking advantage of every inequality of the surface. But if the old bird be removed and you sit still, the young get up after a time and call for the lost parent, using far less caution.

We sat an hour and a half listening for their little "peep peep" before we could locate three of them. The yolk was still in their stomachs, so they had not been hatched long, yet they were forty yards apart; and one, which appeared only able to toddle, travelled twenty yards after I first sighted him. Those who have not been engaged in these hunts cannot realise how difficult it is to see the little things among the lichen, &c., as long as they remain quiet. The old Redshank stands in a very upright position; but is rarely still, constantly bending his body with a rapid jerk, at least when he thinks danger is about, and even with glasses I never had the pleasure of watching him when he did not know I was there.

We were very disappointed in the country, for our Russian said these were all the marshes within reach; far too much wood and too little marsh. Juno discovered a brood of young Capercaillie yesterday and one of Willow-Grouse to-day.

June 25th.—We went on a forlorn hope across the lake, which is here five versts wide, to some marshes on the east side which the men predicted would be little use, and they were right. Before us rose the Hibsinski Mountains, faintly shown on Plate 58. Governor Engelhardt states (p. 79) that some of these peaks rise 970 feet above the lake, which in its turn is 140 feet higher than the sea level; but I feel sure that some mistake (possibly feet in place of metres) has been made here in the translation, for both lake and mountains are of much higher elevations. Rae says the lake is over 500 feet above the sea (p. 230) and gives Umpdek Dunder as the name of the range of mountains, while Lieutenant Temple, in his paper published by the Royal Geographical Society, calls this range the Umbdek-dunder, and states they rise to an elevation of 2500 feet, a height which is probably much nearer the correct one than that given by Governor Engelhardt. All the lower hills had been rounded by ice, and the valleys were full of ice-borne stones, now covered with thick moss. I noticed many moraines in the parts we traversed.

Two pairs of Greenshanks evidently had young near the first lake

and flew at us repeatedly, swooping close over our heads. Several Wood-Sandpipers had also hatched off; we secured one family of four young in down, not more than a day old. The next lake and marsh a mile beyond yielded no better results, and the men said there were no others within twenty versts. We saw another family of Hawk-Owls here. More than a square mile of the wood had been burnt within the last two or three years, and presented a most drear picture—thousands of young trees stretching their withered arms to the sky, and waiting for some kind gale to lay their dead trunks on Mother Earth, where they might return to the mould from which they grew. In most places the fire had only burnt the moss and charred the trees for twelve to eighteen inches up their stems, but it had evidently killed their roots, most of which run near the surface of the ground.

A trout, caught when recrossing the lake, was of a deeper red and better eating than any from Lake Pulozero.

June 26th.—There being no more marshes and no more Godwits, we decided it would be better to return to Pulozero to-day, and left Raz-Navolok at 11.45 a.m. When near the spot where we found the Capercaillie's nest, both of us noticed a new bird's note, so distinct that it attracted attention at once. Musters commenced to stalk the bird, and shot it after some trouble in the top of a high pine. On examination, we decided it must be an Eversmann's Warbler *Phylloscopus borealis*, which was afterwards confirmed. Mr. Witherby did not meet with this species, but Mr. H. Goebel records it as breeding in the north-west and Kola districts. I caught four good trout on Lake Pereyaver, and touched seven more while rowing down Lake Kolozero, but none of these were hooked; it was little use to fish after 9 p.m. We stopped to explore three small islands at the upper end of Lake Pereyaver, and found on the first one a Velvet Scoter's nest with five fresh eggs, and a Lesser Black-backed Gull's with two, nearly hatching. Two Willow-Grouse were here, but the only nest we could find was a year old and contained nine egg-shells. A pair of Grey-headed Wag-

F. 16. 1/2 S. 10.20 *p.m.* 23-6-03.

YOUNG OF BAR-TAILED GODWIT.

PAGE 156.

tails had a nest with young. Several sucked eggs of ducks showed that the Raven had been before us.

The second island held nothing; but on the third Juno found a Common Scoter's nest with seven eggs, and the men a Lesser Black-backed Gull's with three, hatching. This island contained the only Diver's nest, a Black-throated, with one fresh egg; the other egg, recently sucked, lay on the opposite side of the island, and a similar fate had befallen a number of ducks' eggs.

We arrived at Pulozero at 3 a.m. All were asleep, but the door was unfastened as usual, so we were able to return to our quarters and cook a meal without disturbing the household. I sometimes wonder whether the locked or the unlocked door, with all it signifies, is the higher form of civilisation.

June 27th.—We had left the Spotted Flycatcher's nest till to-day to get a complete clutch. There were now five eggs, and we saw the bird well. Another Eversmann's Warbler was singing in the wood near the house, and we occupied some time searching for the nest, a forlorn hope, as they had probably recently come or we should have heard them before. Soon after leaving the Warbler we surprised a Wood-Sandpiper with its four young, in a small marsh. As these were a day old apparently, they had not scattered more than ten yards, and lay perfectly still in shallow water among the scant herbage. Every little one was really fully exposed to view, yet it took us more than half-an-hour to see them. The old bird was very much in attendance all the time. When caught, I put the young in my coat pocket, where they soon began to cry for their parent; and that bird not only followed me through the remainder of our short walk, but also back to the station, nearly a mile away. He—for I feel sure only the male would have done it—often settled on the young trees within five feet of me, and expressed very clearly his views of my conduct. As we reached the first hut of the settlement he left, and I watched him fly back to the neighbourhood of the marsh where we had found the young. I hoped I had got rid of my accuser, but no;

he returned and settled on a low shed close to the house. I need scarcely say the young ones continued to answer his cries from my pocket the whole way. I have never met with a similar case, although I have repeatedly carried home young which made themselves heard distinctly, Young in down should never be killed when just found; they keep much better if carried home alive and then plunged into a jar of methylated spirit—the quickest and easiest death possible.

June 28th.—We spent eight hours to-day on the first large marsh to the south, excursions to which have been repeatedly described. The only eggs taken there were a very finely marked clutch of Snipe; the nest had been found on our last visit with one egg. This bird sat until Musters was within a foot of it, and then only rose when he stood still, thinking he must have reached the spot: an example of how easily sitting birds may be passed. They rarely rise if you walk straight on, but there is much more chance of putting them up if you take a zigzag course and stop occasionally to look round. We shot three Broad-billed Sandpipers here; all were afterwards found to be males, although the second was thought at the time to be a female, as it did not sing and kept on the ground. This species was almost the only one among the Waders of which we noticed more than Mr. Witherby did in 1899. He found a pair at Raz-Navolok (where we did not meet with it), and two birds near Pulozero. One bird I was much surprised not to see in this country, viz., the Dunlin; there were large areas well adapted for its breeding-ground. Mr. Witherby did not find it, and Mr. Goebel only mentions it as obtained near the coast. I saw Dunlins at Lutni, nearly seven degrees to the east of Pulozero, and at several places on the northern coast; and in all other expeditions I have found it breeding near the sea. On looking up this subject in Dresser's "Birds of Europe" and the 4th edition of "Yarrell"—the sheet-anchors of the working ornithologist respecting British birds—I noticed a statement in the former respecting the Dunlin with which I cannot agree. Mr. Dresser says (p. 24, vol. viii.): "In Iceland it is stated to be not so numerous as the Purple Sand-

piper," but does not give his authority. Now I have seen flocks of many hundreds of Dunlins at Eyrarbakki on the south coast early in July; and doubt whether the whole of Iceland contained as many Purple Sandpipers as I saw Dunlins that day; they were only the advanced guard preparing for migration to the south.

We were returning home fairly tired, for some hours had been spent tramping through bogs up to our knees in hopes of finding a late Wood-Sandpiper's nest in the tussocks of coarse grass, when the sight of a male Spotted Redshank which evidently had young, put new life into us. He fell on the opposite side of the marsh apparently dead, but turned out to be a "runner." Fortunately, there was still ice fifteen inches below the surface, so we got across the marsh safely. The young were there, but what a hunt the little rascals gave us, for they were older than those we had previously found, and pin-feathers were showing in their wings. It was only after two hours' hard work that we secured three of them, which have gone to the British Museum, the first specimens of young Spotted Redshanks received there. Three young Ruffs—unfortunately for themselves—were mixed up with the Redshanks, and came away with them. Their mother was in close attendance; her only note being a grunt.

As we walked down the side of the smaller lake nearest the station, a Black-throated Diver suddenly rushed off the bank close to us. When thirty yards off it turned round and shook its wings at us. This species will sometimes come almost up to the land, as if about to attack the intruder, when it has incubated eggs. It was on the opposite side of this lake that Musters took two eggs on the 15th, but we could not say whether they were the same birds.

June 29th.—Our diaries and other work were so much behind, it was 5 p.m. when we set out to visit some islands at our end of Lake Kolozero. As we walked up the path to the lake, a Goldeneye flew over and appeared to have an interest in some of the trees near; a short search showed which it was—a dead tree only seventy yards off, with two small holes in its side and its stem covered with down.

The bird must have gone in and out of the top of the tree, as the holes were too small to admit my hand, but she had pushed the down out through the holes before taking the young ones to the water; a fact which Musters had often observed before although I had not. This nest was a good illustration of our want of "luck," for we had been repeatedly within a few hundred yards of it during the previous weeks, but never near enough to see it through the intervening trees.

The first little island held nothing, but on the second we were more fortunate, as we found a Red-breasted Merganser's nest with seven fresh eggs, a Wigeon's with six slightly incubated, a Meadow-Pipit's with six, and a Reed-Bunting's with seven much incubated. The Scoters we had hoped to find were not there. Then we rowed out to a large heap of stones, deposited by some old glacier long ago, against a wind so heavy that it was very doubtful for some time whether we should reach the islet. A pair of Herring-Gulls had three eggs, and a nest of the Lesser Black-backed Gull held three, with a young bird just emerging from one of them. Two pairs of Arctic Terns had nested on a small piece of shingle driven up by the waves, and made a great deal of fuss as usual; while a White Wagtail had young amongst the stones, as it accompanied the boat with its mouth full of food. A few Whimbrel completed the population. The lower end of the lake is very shallow, and its bottom covered with large stones, probably ice-borne.

June 30th.—Like Mr. Dick in his efforts to keep King Charles's head out of his Memorial, I have tried to avoid the subject of mosquitoes; but they had now become too obtrusive to be ignored; and as also there appeared to be little hope of now securing eggs of the two birds we were specially interested in, we decided to return to-day to Kola. The difficulties of transport were even greater from Pulozero; so we generously presented the telegraphist with the bulk of our remaining stores, for which he was really grateful, and insisted in return on providing our last meal. The first course was nettle

F. 11. 1·2 *S.* 4.45 *p.m.*

OUR BOATMEN FROM PULOZERO.

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soup thickened with chopped meat and hard boiled eggs, so like spinach soup that we wondered why the weed was not more used in our own country. Then followed reindeer tongues—very good; next, eggs and bacon (our own bacon); while strawberry-jam tart closed the repast. We were sorry to leave our kind host, who had done all in his power to make our stay a pleasant one, and had given us every assistance possible in our work. At last the final good-byes were said, and we started on our homeward way at 1 p.m. in two boats; our crews consisting of three men and one woman from the station, the man who had been our regular attendant from the first, and an old woman—these last wishing to go to Kola. The four from the station are to the left in Plate 61. Unfortunately, natural shyness prevented my asking the lady to raise the skirt a little to exhibit some wonderful stockings and garters which were generally visible. Her husband is on the right.

We landed on one island in Lake Pulozero in hopes of finding Scoters' nests, but the only two seen were Red-breasted Mergansers' with seven and eight eggs. As there was a fair wind, we reached the end of the lake at 3 p.m. The portage to Mordozero occupied two hours; the weather was hot and the mosquitoes beyond description. A general desire for tea took us to land again at six (Plate 62); this occupied more than an hour, so that it was 11 p.m. when we reached Kitsa. Our old hut was full of women and children, and the station-hut full of men, mosquitoes, and smells. Two of "Solovieff smoking-candles" (*Fidibus insettifughi*), recommended by Governor Engelhardt,[1] soon cleared off the second nuisance, but the other two were not so easily disposed of. After another meal, and paying our four carriers from Pulozero, we set off again at 12.45 a.m. to walk those 17 versts to Tschongai. Fortunately some fog came on at 3 a.m. and caused the mosquitoes to retire. Tschongai was reached at 5.40 a.m. The odours of the hut had increased so since we last had a meal there

[1] "A Russian Province of the North," p. 105. These candles can be obtained at the Army and Navy Stores.

that we made our fire in the open, and had just finished "tea" when rain commenced, which continued all the way to Kola. Another Eversmann's Warbler was singing here near the hut.

Only one boat was to be found here, the other having been borrowed by the timber-men; and as our party had now increased to eleven, besides a dog and six loads, there was considerable doubt for a time whether some would not have to walk or remain behind. At last at 7.50 a.m. all were safely stowed on board (somewhat like sardines in a box), and the boat proved a good sound one, for she leaked very little with the water only two or three inches below the top of the gunwale. That voyage down the river was not a pleasant part of the journey; the rain poured down at times, and drizzled the remainder. Both men and women must have been wet to the skin, as most of them wore only their summer clothes. Musters and I escaped, thanks to our macintoshes and leggings. This "water picnic" ended at eleven, and we reached Kola before noon, very glad to be back in our old comfortable quarters.

July 2nd.—A priest here had asked us to bring him some pine-cones with seed; one of those sweet lovable old men who win you at once, so that it was with real regret I was only able to take him a few poor cones to-day, the only ones we had seen during the whole of our stay in the interior. I explained that if they had been as plentiful as mosquitoes he should have had any quantity. He was much surprised to hear we rarely saw these insects in England, and said we made so much smoke there it must kill them all, an aspect of the smoke nuisance I had not heard before!

We crossed the Kola river and went up to the tarns visited on May 26th. The young Ravens we had then seen in the nest were now on the hill, but the Bean-Geese had gone. A small colony of Arctic Terns had eggs and young on the island in the largest pool; on which also was a Redshank's nest with four eggs. Near the side of the tarn a pair of Red-necked Phalaropes had a nest with four eggs, the only one found this year. We found both lately hatched young and eggs

of Temminck's Stints; also nests with eggs of Redwings and Bramblings. One of the latter was a very peculiar nest; something seemed to have proved unsatisfactory about the foundation, and the bird had gone on adding to the nest until it was nearly a foot high; but all her labour had been in vain for some wretched crow had sucked the eggs. We saw several Wood-Sandpipers and Redshanks, and spent much time over the former without result. Another male Eversmann's Warbler was shot in the scrub as we went up to the lakes.

July 3rd.—A few Temminck's Stints had eggs in the old churchyard on the island in front of Kola; and a large shingle bar near held a pair of Oyster-catchers with young, and several pairs of Ringed Plovers; we caught young of both. The little Oyster-catcher harmonised particularly well with its surroundings and must have remained more than an hour without moving.

After lunch we rowed up the Tuloma to an island about a mile above the town. A few Terns had nested here, and like those yesterday, had partly hatched out. We found four nests of Temminck's Stints with eggs (4, 4, 4, 3). The eggs in another nest had been recently sucked by some robber, and both the Stints were busy eating the remains! One bird carried a shell on to the beach and finished the contents there. A Ringed Plover had four fresh eggs on the island; and a Red-breasted Merganser eleven, slightly incubated.

Two Scotsmen arrived to-day who had been salmon-fishing higher up the Tuloma; but had had poor sport, as the river was too high. They have leased the rod fishing in the river from the Lapps, and erected huts at the best places. These rivers in Russian Lapland have a short season, because there are no mountains behind them with large accumulations of snow to maintain the water during the summer as there are in Norway. Still, 617 fish had been caught with the rod in one season some years before.

July 4th.—We crossed the Kola river again to-day specially to search for Pine-Grosbeaks, but never saw a bird. A Redwing's nest contained two eggs nearly hatched and three addled. These birds

are either much disturbed, or sometimes breed late in the season, for another pair were busy building. We heard two Eversmann's Warblers singing to-day, and thought we had secured a nest with five eggs, but it turned out to be a Willow-Wren's. A small colony of Sand-Martins were nesting in a sandbank near the Kola river; we dug out several nests with eggs, all twelve to fifteen inches in the bank, the eggs much incubated. Their relatives, the House-Martins, had a number of nests on one of the houses in Kola, where the window-heads formed a specially good foundation. As far as we noticed they were confined to that house only.

July 5th gave little of interest to record. We took another nest of Temminck's Stints' eggs near the Tuloma; and caught four young, which moved nearly 100 yards in less than two hours, though they were only some two days old. A pair of Buffon's Skua had two eggs half-incubated on high ground; they were the only birds of this species seen in the country this season; both mobbed poor Juno severely when she approached the nest. We spent some hours in a last effort to find nests of the Pine-Grosbeak but only saw one bird (with red breast) and some old nests. I shot two Mealy Redpolls, the rumps of both of which were white and unstriated. Several of these birds secured in May were similar. It is therefore curious that all the birds shot in this district by Mr. Witherby should have been typical specimens of *Linota linaria*. Mosquitoes that night made us long to be out of the country, they hummed round our veils like a hive of bees and generally made life a burden.

July 6th was chiefly occupied in packing, as we were to leave that afternoon by the Russian mail steamer. When everything was finished and the boxes taken down to the boat a telegram came saying the steamer would not arrive till about midnight. Our friend Mr. Skjœrseth once more rescued us from our troubles—all the food being packed—by taking us to his house for dinner. There we met our two countrymen, who were returning by the same steamer, and a very pleasant meal was that last one on Russian soil. It was nearly

F. 11. 1/2 *S.* 6.35 *p.m.*

TEA ON THE LAKE-SIDE.

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2 a.m. when the steamer at last appeared out of the fog and rain, but we occupied the time of waiting by going over the sawmill described on May 17th. All the men and machinery were at work when we arrived at 1 a.m.

July 7th.—Like the previous Russian steamer, there were two coats of dirt over most things, and the sanitary arrangements left much to be desired. I had the pleasure of meeting again the head of Saint Triphon's Monastery, who presented me with his portrait (reproduced on Plate 63). A number of the monks and servants of the monastery came to receive him when we anchored in Pechenga gulf. We landed for an hour and walked up the Triphona river. A Wood-Sandpiper seemed to have young in a small marsh, and both Meadow and Red-throated Pipits were anxious about the safety of their families. We arrived at Vardö at eleven the next morning, to find there was no mail steamer for the south till midnight of the 9th, so we devoted most of our time to the Snow-Buntings, hoping for late nests. We found two among the rocks at the back of the town, the first containing six eggs, and the second four, all much incubated. Young birds were on the wing.

July 9th.—We spent all the morning on the point beyond the Governor's house, and found a number of birds there, Wheatears, Mealy Redpolls, Meadow, Rock, and Red-throated Pipits, Snow-Buntings, Shore-Larks, &c. Two Common Eiders were sitting, but most of them had their young on the sea. Many young Snow-Buntings were flying about the rocks, so we were fortunate in finding another nest with five eggs not so incubated as those of yesterday.

We had heard that the S.Y. *America* was expected from Archangel, where she had gone to complete her equipment of ponies, dogs, and arctic stores; and saw her steam into the harbour while we were searching for Snow-Buntings. So, as soon as dinner was over—said to commence at 2, but rarely ready before 2.30, and extending to 3.30—we went on board, and were warmly welcomed by Captain Coffin and Mr. Champ. The latter, Mr. Zeigler's private secretary, I had spent

several pleasant days with in Tromsö in 1901. Anything more dreadful than the chaos on the deck of the *America* I have never seen! In the centre were thirty ponies, some of which had been to Franz Josef Land the year before. A rough roof of boards had been erected over them to give some slight shelter from the weather. This and the forecastle were occupied by 240 dogs of all ages, chained up in groups. Only one of our large dog-shows could give any idea of the pandemonium; many were within effective fighting distance, and constantly made use of their opportunities, several men with heavy whips being employed in settling the little differences. Every foot of space not occupied by horses or dogs was covered with heaps of cases piled up in all directions till locomotion became a difficulty. I only hope Captain Coffin enjoyed fine weather during the first part of his voyage, and so had time to reduce things to order before encountering the ice. Staff and crew numbered thirty-nine men, the greater part of whom were Americans. The ship appeared to be well fitted for its work, and for the comfort of the men. She sailed the next day, and I trust her second attempt to reach a high northern latitude will prove more successful than the first.

We were detained two days at Hammerfest which we spent on the hills round the town, seeing little of interest beyond some Purple Sandpipers with young in down. Fourteen Ravens were congregated on a hillside, disturbed from some feast. A few Mealy Redpoll, Red-throated Pipits, Shore-Larks, Temminck's Stints, Long-tailed Duck, and Red-throated Divers formed the remainder of the bird-population, a very scanty one.

That voyage down the Norwegian coast is rather a weary time after its novelty is gone, and one is anxious to reach home. Fourteen days were occupied in travelling from Kola to Hull, enough to go to New York and back! Still we were favoured with fine weather the whole way, especially on the North Sea, and reached Hull in the SS. *Eldorada* early on July 20th.

And now a last word respecting the birds recorded in the pre-

ceding pages, or in Appendix I. Of the 182 species only 16 are not on the British list; while of those on our list, 22 certainly breed in Russian Lapland that have never been known to do so in Great Britain (besides others still doubtful). It is the last fact which constitutes the great interest of these northern countries for the British ornithologist. Norway is now closed to those who wish to study birds in their breeding haunts and obtain specimens of eggs of British species, only breeding in the north, for their collections. Licences to take eggs are only granted by the Government to Norwegians! I understand it is probable the hotel proprietors on the Dovrefjeld will shortly have notice that they must refuse to allow all persons to remain in their hotels whom they have reason to think are collecting birds, eggs, or plants. But Russia is still open, and the genuine ornithologist who collects from scientific interest and not for trade purposes receives every assistance from the authorities. I can only conclude with grateful thanks for the many kindnesses experienced from all officials especially from the Governor of the Province.

CHAPTER IV

SAINT TRIPHON'S MONASTERY

THE following chapter contains a translation of a small book given to me by the Archimandrite Jonathan, on the history of St. Triphon, and the monastery St. Triphon erected by the Pechenga river, prepared for distribution among the numerous pilgrims who now visit the monastery every year, specially during the winter months. I have omitted the accounts of numerous miracles performed since St. Triphon's death.

When first visiting the Pechenga gulf, it was rather irritating to be constantly met by the statement that everything belonged to the monks, for most Englishmen have an ingrained objection to the monopoly of the good things of this life by the religious orders; but even during my short visit I saw cause to view the matter in a different light. In many respects these people correspond more nearly with the English of the twelfth century than with those of the present day; and the monks are now doing the same good work of education and civilisation that our English monks did in the early days of their establishment among us. With the very imperfect means of interpretation available I could obtain little reliable information about the people beyond what I saw; but certain facts were obvious in the Pechenga valley. No one begged, none looked hungry, all had sufficient clothes to keep them warm, and many boys could read Russian. There was also a general air of comfort about the villages in the valley and their inhabitants, equal to that of our agricultural villages in all respects, except as regards the roads and the surroundings of the houses. The interiors of all the houses we saw were clean "homes," not "cattle sheds" like Ivan's fishing huts.

THE ARCHIMANDRITE JONATHAN.

ST. TRIPHON'S MONASTERY.

In the general view of the monastery buildings (Plate 64, taken from the top of an old moraine), the church is on the left at A (Plate 65), and the residence of the monks is at B, a nearer view of which is given in Plate 66. I understood our guide to say that the lower part of the latter building on the left had been built long before the restoration of the monastery; and was the home of the monks in charge of the old church here. Partly hidden by the trees, and just to the right of the main building, is the guest-house C, where we were entertained; a comfortable and clean structure, in the charge of a wee little monk who presided over our meals with a kind "womanly" attention that was charming. D is another house for entertaining larger bodies of pilgrims, and has only recently been erected. Reference to Plate 67 will show how beautifully all the logs in its walls have been reduced to an even diameter, and look as if they had been turned in a lathe. The Russians are wonderfully expert with the axe. The large building in the distance behind D is the cow-house; and in another building near it are all necessary appliances for steaming and preparing their food. The hill E is surmounted by a large cross, and is called Mount Calvary.

Plate 68 represents the church recently erected over the ashes of the 116 martyrs murdered by the Swedes in 1590. Behind it stands a much older church—apparently 150 to 200 years old; and again to the left is a new monastery, to which it is proposed to transfer many of the monks. The small house on the extreme right is the home of two or three aged monks. These buildings occupy the site of the original monastery erected by St. Triphon; and it is difficult to understand why the new monastery was not also placed here in 1886; for, apart from its old associations, it is so much more accessible from the sea, by which route all supplies must come.

If the tradition related on page 181 dates from the time when the events occurred, it appears worthy to rank with the Scandinavian Saga.

NARRATIVE

Of the Holy Triphon, the Miracle Worker of Pechenga and Enlightener of the Laplanders; and of the Monastery Founded by Him.

(*"The Holy" is inserted in all cases before "Triphon" but has been generally omitted in this translation.*)

"The Lord will have all men to be saved, and to come unto the knowledge of the truth" (1 Timothy ii. 4); for all people did His priceless blood flow; and thus for every man, whoever he may be, He opens His arms to embrace him in His divine love. Both the learned man and the unlettered and ignorant, the wealthy lord and the lowest beggar, the half-wild inhabitant of the torrid wastes of Arabia, the enlightened Greek, and the wretched nomadic wanderer of the Northern Plains and swamps of Siberia,—all find an entry to the Kingdom of Heaven, to all is announced the Gospel of Christ, all are summoned to Salvation. None are forgotten by the Heavenly Father; and when the fitting time arrives, He sends His chosen messengers to carry the word of Salvation to those sitting in darkness and in the shadow of Death.

Such a chosen vessel for the poor inhabitants of our distant northern parts—the Laplanders, was our Sainted Father Triphon the Miracle Worker of Pechenga.

The Holy Triphon, known by the worldly name of Mitrophanes, lived during the reign of Czar Ivan Vassilievich the Terrible; and was the son of a priest in the town of Torzhka in the district of Novgorod. Brought up in the love of God, he from his infancy loved the temple of the Lord where he used to sing and read, and at times he was wont to hide himself from the sight of man so as to offer up in retirement his prayers to the Lord. Upon one occasion in his

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GENERAL VIEW OF ST. TRIPHON'S MONASTERY

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seclusion he heard a voice: "This is not your place; an uninhabited and thirsting region is awaiting you"; and obeying this mysterious summons he left his father's roof and wandered forth to the far North, finally reaching the shores of the Arctic Ocean, at Kola Prissoud, on the river Pechenga in the country of the Laplanders.[1]

Under the guise of trading he became acquainted with the Laplanders, and afterwards talked to them about the Gospel. Apostolic labours of the heaviest description awaited this preacher of the Gospel of Christ in the midst of rough idolaters—without any means of defence against the wickedness of those heathens. The Laplanders not only worshipped evil spirits, but even reptiles and bats; and bowed down before stones. Triphon living in their vicinity and watching their coarse superstitions, deeply bemoaned the errings of these people; and his soul kindled with greater zeal than ever to lead them to Christ. He began by telling them of the only True God, the Creator of Heaven and Earth, the only Father and Saviour of all people. The habitations of the Laplanders were scattered over swampy districts at great distances from each other; the country which the Holy Triphon had chosen for his apostolic labours extended over about 500 versts in length and nearly as many in width. Blind in their ignorance, the people were very slow at first to accept the lofty teachings of Christianity. Triphon had to battle hard with the superstitions and ancient delusions of the idolaters; and he met with the greatest opposition from the seers, or idolatrous priests, for whom idolatry constituted a profitable profession. They were ready to tear the new teacher of the Truth to pieces; more than once they beat him cruelly, pulled him by his hair, and in many ways insulted him. But the Lord watched over His servant. The follower of Christ meekly suffered blows and insults; and when their malice became too furious, he went away to the hills, and after a time reappeared to preach the Gospel. But evidently even the savage has a conscience and a desire to learn the truth; amongst the Laplanders there were

[1] "Troitzky Papers," No. 764.

those who were moved by the patience and mildness of the preacher, and by his self-denying love to them notwithstanding their persecutions. Thus it happened that when he reappeared amongst them, and some would savagely cry out: "Let us kill him," others would gently say, "He has done us no harm, on the contrary, he wishes us well; therefore why should we kill him?" And the number of these latter gradually increased. After preaching for twenty years on the banks of the rivers Pechenga, Tuloma, and Pazreka, Triphon had already imparted the Evangelical Gospel to many; and numbers of Laplanders believed in the Lord Jesus. But at that time he was a layman, and dared not himself baptize the Laplanders; and there was not one ordained priest in the whole of that district. This induced the Holy Triphon to journey to Nizhni Novgorod, where he asked and obtained from Archbishop Macarius an edict for building a church. He brought carpenters with him; and carried on his own shoulders, from a spot over three versts distant, logs of timber to build the Lord's House with. Working in this manner during the day, he devoted his nights to prayer; and meanwhile continued to strengthen his converts in their faith. This church, built in the name of the Holy Everlasting Trinity, remained for three years without being consecrated, because there was no priest. Triphon went to Kola, the only Russian colony; and there as if under heavenly guidance he met Elias, a regular priest; and persuaded him to accompany him to the river Pechenga. The ardent wishes of Triphon were fulfilled; his church was consecrated; the Laplanders whom he had converted, were baptized; and he himself, being already a veritable monk in his innermost soul and according to his whole apostolic activity, now entered the monastery. This was approximately in the year 1532.

Having become a monk, Triphon commenced building the monastery; and when it was completed men began to gather round the holy Father, who were seeking solitude and wished to renounce the world for the sake of serving God. Meanwhile Triphon most zealously continued his labours of spreading the Gospel amongst the savage Lap-

landers. Bravely he travelled across the tundras and hills, wandering from one hut to another, often sinking in the swamps and quagmires, suffering from those terrible northern frosts, and patiently bearing every insult for the sake of the Lord. And God blessed his work; he found those amongst the Laplanders who wished to devote themselves to the service of the Lord; and others brought what they could to the new monastery; they gave money or land, lakes or other property.

But scarcely had this community of monks been established around the lovely church when a terrible famine visited these distant parts of the North; severe frosts had killed the crops during several years, and a great want of corn arose. Triphon now entered upon a new field of action, a most difficult undertaking; he became the provider of bodily food to those who had entrusted to him their souls. Accompanied by some of the brotherhood, he wandered in great humility through the vast district of Novgorod, journeying from town to town, from village to village, begging for alms; and sending home all he gathered to sustain his brotherhood and his newly converted Laplanders. In this manner he passed eight years, going even as far as Moscow. There he delivered a petition from the monastery to the Tsar, while the Tsar and the Tsarevich Theodore were on their way to church. The kind-hearted Tsarevich came out of the church into the chantry as if by accident; and taking off his outer garment, sent it to Triphon with the following message: "The Tsarevich wishes that his alms should be the forerunner of those of the Tsar; let the Holy Triphon use this garment for church attire." The Tsar also gave Triphon church ornaments and other presents.

Returning to the monastery, Triphon brought joy and comfort. The monks were now provided with fishing grounds and lands. Triphon handed the Tsar's decree for the usage of these fisheries and lands,[1] and also the alms collected from Christ-loving people, to his

[1] That remarkable decree of the 1st November 1556 reads as follows: "At the entreaties of our children Johan and Theodore, we have conferred upon our Imperial Man of Prayer,

cellarer, entered the names of the benefactors in the Obituary, so as to be mentioned in their prayers; and then resumed his ordinary work like the lowest lay brother. With the alms collected in Moscow he built a separate church for those who were newly baptized in the name of Sts. Boris and Glieb near the river Pazreka.[1]

Such was the humility of the holy Triphon that, having obtained the charter from the Tsar, he wished that his name should not be mentioned in connection with the monastery he founded.

Even in his old age he did not cease to work. On one occasion he bought in Kola a manual grindstone for corn, and carried it to the monastery on his shoulders, a distance of 158 versts. It was in vain that his pupils begged him not to labour under such a load: "Brethren," he said, "a heavy burden rests on the sons of Adam; how can they turn to mirth? No, Triphon, it were better for you to hang a millstone round your neck than to lead astray the brotherhood."

One day a bear entered his cell, overturned the kneading trough and began eating the dough, when Triphon entered and said: "My Lord Jesus Christ, Son of God, commands you to leave this cell and to stand still." The bear went outside, and stood at the feet of the

from the Arctic Ocean on the Murman borders, Abbot Gouri and the brotherhood of the Pechenga Monastery of the Most Holy and Eternal Trinity, or whoever may in said Monastery hereafter be Abbot or Brothers, instead of prestimony, and in place of dues for masses and thanksgiving prayers, for their use and maintenance, in patrimony; the Matotsky, Ilitzky, and Oursk bays, and the Pechenga, Pozransk, and Nordinsk bays, with all their fisheries and all that the sea may throw up, whether it be a whale or a seahorse, or any other animal; and all their seashores and islands and rivers and rivulets, their upper reaches and marshes and hilly plains and fields, forests and wooded lakes and hunting grounds, and those Laplanders in the Matotsky and Pechenga bays which now are or in future may be our vassals, with all meadow-lands and money taxes due to us, the Tsar and Grand Duke; and with all dues and volost-tithes, for their sustenance and to build the Monastery; and our Novgorod and Dvina boyars, and the Chancellor's officers of the Volost of the Mouth of the Kola, and all people on the seashores, and the Korelsky Children, and the Laplanders or any one else must not take possession of this patrimony."

[1] This church, renovated, stands to this day as a sentinel of the Orthodox Faith on the frontier of Norway. On the 23rd July 1870 this church was visited by His Imperial Highness the Grand Duke Alexis Alexandrovich; and later, on the 23rd June 1873, by the King of Sweden and Norway, Oscar II.; and finally, on the 2nd July 1887, by the heir-apparent to the throne of Sweden and Norway, Gustav Adolph, and his consort, Victoria.

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CHURCH OF ST. TRIPHON'S MONASTERY.

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Holy Man. Thereupon the Saint chastised the culprit, warned him never again to disturb the monastery, and dismissed him. And henceforth no bear ever harmed the reindeer, or any other living being of the monastery.

In his latter years the Holy Man frequently went away to his hermitage, where he built a church in honour and memory of the Assumption of the Holy Virgin, and passed his days in prayer. He also ordained that he should be buried in this hermitage.

In this manner, performing many noble actions and doing much work, he reached a venerable age; and after living for seventy years in this most desolate of wildernesses, as related by the local contemporary ecclesiastical historians, he at last fell dangerously ill. To the Holy Triphon came Abbot Gouri and the brothers who had been his pupils; and seeing him so seriously ill, they bemoaned deeply that they should be bereft of such a noble teacher, and be left orphans.

"Do not grieve brethren," said the Holy Man, "and do not interrupt the even flow of my tide. Put all your trust in the Lord, because if the Lord my God Jesus did not abandon me, then so much the less will He desert you, who are gathered together in His holy Name. But I commend you with all your heart and the whole of your soul to love God glorified in the Holy Trinity, and to love one another; my children, preserve your brotherhood in continence and honesty, and keep away from the love of power. You have known me for many years; and you have seen with your own eyes that my hands have worked not only for my own, but also for your needs; and that I was a lay brother to all of you. I entreat you, do not grieve when I have departed this life, because such is the lot of every man; and even if the body goes to dust, yet the soul rises to Heaven. Struggle onward to where death is not, where shines eternal light, and one day is more than a thousand; and love not the cursed world, false and troubled like the sea, and frothy with sinful waves. But when my soul has left this body, I enjoin you to bury me by the Church of the

Assumption of the Holy Virgin in the hermitage, where I often used to go to turn my thoughts to God in silence."

Having uttered these words Triphon raised himself from his poor mat of rushes; and sat up so as to partake of the Blessed Body and Holy Blood of Our Lord Jesus Christ; and then he broke down and suddenly burst into tears. The Abbot asked him: "Holy Father, you forbid us to grieve for you because you joyfully go to your Lord Jesus; tell us then why do you shed tears?" And the Holy Man replied: "A heavy trial awaits this monastery, and many will suffer martyrdom from the edge of the sword; but do not my brethren become feeble in your trust in God; He will not leave the rod of the sinners to their own fate, because He is powerful, and He will once more build up His monastery." Then he laid down again upon his mat and his face became serene; and as he was dying a smile passed over his features, and then he gave up his soul to the Lord. He was ninety-eight years old, and the date of his death was the 15th December 1583. His saintly remains were interred where he had wished, in the hermitage by the Church of the Assumption of the Holy Virgin.

The Holy Triphon was of low stature, bent, and somewhat bald-headed, but wore a long grey beard.

Seven years after the death of the Holy Man, Tsar Theodore Joannovich besieged Narva. The besieged Germans directed their guns at dawn towards the tent of the Tsar, wherein the Tsar was still lying asleep. And there appeared to him in his sleep a noble aged man in the garments of a monk, who said: "Arise Sire, leave the tent so that you shall escape death." "Who are you?" "I am the same Triphon to whom you gave your mantle, so that your benevolence should outstrip the others. The Lord my God sent me unto you." The Tsar awoke and had scarcely left the tent, when a cannon-ball from the town struck the Tsar's bed. The pious monarch was deeply moved by this act of God's mercy, and sent a messenger to the Pechenga Monastery to find Triphon; but the reply came that

he had died seven years ago; and the Tsar thereupon conferred many benevolent favours upon the monastery.

After the death of Triphon, the fate of the Pechenga Monastery, which he had founded, became a very sad one. His prophetic saying that many of the brethren would suffer by the sword, was literally fulfilled in seven years. In 1590, a week before Christmas, a band of Swedes burnt the Church of the Assumption of the Holy Virgin, where the bones of Triphon rested in a secluded spot. They also tortured to death hieromonk Jonas, and the monk Herman, and then they hid themselves in ambush.[1] On Christmas Day they broke into the Monastery of the Holy Trinity, and with brutal cruelty they began putting to death the monks and laymen, who were celebrating the Holy Liturgy in the church; some they cut in two crosswise, others they cleaved in half lengthwise, and of others they cut off their arms and legs. Abbot Gouri and other hieromonks they tortured in various ways; they pierced them with their weapons, or roasted them over the fire to extort from them where the riches of the monastery were hidden; but the sufferers underwent all these tortures in silence, and the infuriated Swedes at last hewed them to pieces. Having secured all the plunder they could, they set fire to the church and all the buildings of the monastery. In all, fifty-one monks and sixty-five laymen and workmen perished; only those survived who were absent in the service of the monastery. On their return they buried the murdered victims with all honours.

The remains of the martyrs now rest in one grave, close to the spot where once stood the Trinity Church and the old monastery.

There are also records of this sanguinary event in Norway. Our Russian Consul, D. N. Ostrovsky, discovered in the Norwegian State Archives an ancient Danish document concerning the destruction

[1] According to tradition the Swedes dared not for a whole week approach the monastery, because they thought that the ramparts of the monastery were occupied by a large number of armed warriors.

of the Pechenga Monastery in 1589.[1] This document, written in the ancient Norwegian language, is in the shape of a booklet in quarto; and contains a list of the victims who perished during the devastation carried into the North of Russia by the Swedes. On the fourth page of this document is a list of the brethren massacred by the Swedes. At the head of it appears the name of Abbot Gouri and three hieromonks, Pachomius, Joseph, and Jonas. The fourth and fifth pages are occupied by names of the remaining brethren who were killed. On page six begins the list of labourers who were in the monastery, and probably of pilgrims; of these fifty-one names are entered. Page seven concludes with the following note:—

"All of them were burnt by the Swedes simultaneously with the monastery. And they also destroyed by fire all buildings, the church, most of the property, the cattle-shed, and the mill. They also burnt a settlement called Vikin, which was the harbour of the monastery, with all the boats and other vessels; and any boats that remained they hewed to pieces. In this manner not a building of the monastery remained excepting the bath-house which stood a little way off, and two earthen huts on two islets which the Swedes were unable to reach.—Vardoehuus the 7th August 1590."

In all probability this document was a report sent by the Governor at the time from Vardö to the Danish nobleman N., Commandant of the Castle from 1587 to 1596. In 1851 this document was returned to Norway at the time when all matters of the Danish Secretary's Archives were transferred to the Norwegian State Archives.

The destruction of the Pechenga Monastery occurred in the reign of Theodore Joannovich during his war against the Swedes. On hearing the news, the pious Tsar was deeply moved; and gave orders that, for the sake of greater security, the monastery should be trans-

[1] According to Russian sources, this destruction occurred in 1590, but according to the Danish document in 1589. The difference is explained by the fact that in Russia, until the time of Peter I., the New Year began on the 1st September, and not on the 1st January as in Western Europe.

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ferred to Kola within the palisades, and attached to the Church of the Annunciation of the Holy Virgin. After the destruction by fire of the town of Kola and the monastery, a new one was built in the reign of Michael Theodorovich in 1619 near Kola, on the banks of the river of the same name; and at a later date it was named the new Kola Monastery by ukas of the Emperor Peter I.; in 1701 the monastery was attached to the prelacy; and finally in 1764, during the reign of the Empress Katherina II., it was merged into the Kola Cathedral; and thus ended its existence.

There exists the following most interesting tradition regarding the wicked murder of the brotherhood, among the Laplanders on the coast. "It was Christmas tide; the sun had seemingly gone down earlier than usual this year (1590), and the state of the air increased the darkness of the heaven. A mist was continually hovering over the earth, and the fog was so dense that at five paces distance you could not see the light in a Laplander's tent. The evil spirit was abroad in the land which had been forsaken by the light of God; and he led people into every wickedness, and aided them in their evil deeds. On the seashore, a day's journey from Pechenga, a nomadic Laplander, owner of a herd of reindeer, pitched his tent. They called him Ivan, as he had been baptized by Triphon himself; but he became a Christian merely because he expected presents; and as he received none, he was filled with spite against the Holy Triphon and against God Himself; and resumed his heathenish life. And God had visibly forsaken him. That year the frost had hardened the snow, and his reindeer were dying daily from want of food; so his herd melted away like ice melts in the sun at summer time. Ivan became furious with anger, and tried to think of some way to make good his losses. Long and deep were his thoughts; and at last he harnessed his sledge and drove into Norway to a place where he knew that pirates lived during the winter. He proposed to lead them to the Pechenga Monastery that they might plunder it, and great were the rejoicings of the robbers. They had had their eye on

the monastery for a long time, but were afraid to do the deed; and did not know their way to it. Their chieftain promised Ivan fifty silver coins in Swedish money, and also gave him twenty in advance; the robbers armed themselves, harnessed a whole train of sledges, and started off. They reached the Pechenga on Christmas Day. About a couple of hours before their arrival, fifty-one members of the brotherhood and sixty-five lay brothers had sat down at their tables in the dining-hall after mass; and the Father Superior, before blessing the victuals, took up the Holy Book, and had just opened it to read the lesson where he had left his bookmark, when he paled, began to reel and fell to the ground. The brethren thought that he had fainted through fasting, and one of them hurried to raise him from the ground. The brother commenced to read in his stead, when with a shriek, he covered his face in terror. All rose and saw with horror that, where the Father Superior's bookmark was, letters written with blood gave a list of those who had been recently murdered; and then followed a list of *their* names beginning with that of the Father Superior. All was confusion and weeping, but the Father Superior firmly ordered all to go into the church; and there, with the whole brotherhood, he knelt before the holy images. Meanwhile the robbers had approached; and while some tried to force the doors of the Holy Temple, others surrounded the wooden monastery and set fire to it on all sides. One of the monks was a powerful giant who had been a warrior; and seeing through the windows only fifty robbers, he begged the Father Superior to bless him and others of the youngest and strongest monks, so that they might defend the monastery with their axes and crowbars. But the Father Superior replied: 'No, it is the will of God, as foretold by the Holy Triphon, although he said not when; and therefore we must not go against His will, but must without murmur prepare to win the crown of martyrdom.' After these words the brotherhood calmed down and became silent. They fell down before the altar in fervent prayer, and at that moment the robbers rushed in; but not one of the monks moved or answered

their inquiries regarding the riches and valuables of the monastery. The robbers became infuriated, and all the monks suffered a martyr's death, without even raising their heads, and with prayers still lingering on their lips. Having killed them all, the robbers rushed off to search for booty, to rob the church plate; and to plunder the monastery; but they found very little, because the monks, leading a frugal and pious life, never troubled to amass worldly riches. Meanwhile the fire was engulfing the whole of the monastery; and the robbers ascended a rock near, where they divided the spoil. A sacred cup of silver fell to the share of Ivan, who hid it under his garment, trembling with greed.

"Standing on the rock, the robbers were waiting for the moment when the church would be caught by the flames; but although the fire was raging all round, it did not touch the wooden church. Suddenly in the sky, above the flaming monastery appeared three snow-white swans. The robbers were perplexed, and asked each other wonderingly: 'Whence come these swans? It is winter now, and they never were here in winter before.' Meanwhile the swans, without leaving the spot over the fire, soared higher and higher in the air; and then suddenly dissolved into a golden circle, shining brighter than the fire. Then fluttered upwards out of the fire one after another 116 birds white as snow, of the size of a sea-gull; and they, rising high up, in their turn dissolved in the golden ring, which widened and shone so brilliantly as to dazzle the eyes. 'See what a grievous sin we have committed in spilling righteous blood!' exclaimed the chieftain awe-stricken; and, with their guide, they rushed down the hill to their sledges, and wildly started their reindeer. On and on they drove, quite exhausting their reindeer; and towards the morning they were crossing into Norway. Ivan, distrusting the pirates, and in fear of their robbing him, was being carried some fifty paces ahead by a powerful bull reindeer; and behind him followed the train of sledges with the robbers and their plunder. Suddenly at the steepest spot the hindmost reindeer stumbled; and with the sledge and its driver,

bounded over the edge down into the abyss, dragging with them the other sledges and inmates, fastened to each other by straps; desperate shrieks of terror for a moment filled the air; and with a hellish laughter the evil fiend answered from the depths of the abyss, mocked by the echoes of the hills in loud and endless repetition. Shuddering, Ivan looked back and saw that all the robbers had disappeared; he turned his reindeer and rushed back; but the animal was mad with terror, its hair stood on end; it pressed its horns flat on its back, and, disregarding its master's lead, jumped aside, and losing its footing on the same spot, bounded into space. Endless seemed the flight through air, until at last Ivan fell on something soft. The north light was shining in the sky; and by it he saw that he was lying on a heap of his crushed and blood-stained companions; beneath him they moved their hands and feet, lifting their heads and begging for help; and all around was a herd of wolves tearing their living flesh and greedily drinking their life-blood. In their greed the nearest wolves threw themselves upon Ivan's still living reindeer. With the strength of maddening desperation he unsheathed his knife, and striking back the attacking wolves, he rushed headlong through the gorge. Far did he run, and at last he reached the tundra; around was the forest, and in the middle a glade with a copious spring rising high, and pouring broadly from the earth's depths. Ivan rejoiced, and parched with thirst he drew forth the monastery's silver cup, filled it with water, and greedily carried it to his lips; but the water was warm and red; he tasted it—it was blood!!! Terrified, he threw the cup into the pool of the spring; but it would not sink, floated upright on the water, and shone like fire; and inside the cup the blood was shining like rubies. His hair stood on end, his eyes protruded from his head; the traitorous Judas tried to make the sign of the Cross, but his arm would not move, and hung down like a lash. Then a column of water rose up from the pool and carefully carried the cup up towards heaven; like a sun the sacred cup was shining on high; all around it suddenly changed to a bright

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GUEST HOUSE, ST. TRIPHON'S MONASTERY.

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summer's day, and the Lord Himself stretched forth His right hand and took the cup to His holy bosom. Once more all was darkness, and as suddenly had turned to black night; with a roar the column of water, which had reached to Heaven, rushed down, seized the half-dead Ivan, and in its whirlpool dragged him down to abysmal depths.

"To this day, they say, in Norway somewhere beyond the Varanger fjord there is a bottomless lake, the water of which even now is of a reddish colour. No living being — man or reindeer — drinks this reddish water; and from the middle of the lake a large yellowish stone rises up, shaped like a cup. No fish live in its waters, and no birds live on the lake; it does not freeze in the winter, but once a year, on Christmas day, three swans white as snow fly to it, and, swimming across its waters, sit on the stone; then they rise aloft and disappear from view."[1]

The pious reader of this narrative will ask: What has now become of the scenes of Triphon's deeds? The prophecy of the Holy Man has been fulfilled with literal exactitude: the Lord did not leave the rod of the wicked to their fate. He showed his creative power in their feebleness. The Pechenga Monastery was restored.

In 1824 and 1867 efforts were made by the Solovetzky monks to settle on the ashes of the burnt monastery of Pechenga near the tomb of the 116 martyrs, but they were not crowned with success—it was evident that the time had not then arrived which the Almighty in His wisdom had appointed for building it up. On the contrary, since 1869, emigrants from the seashore began to settle on the ashes of the old monastery; and having settled there, became full owners of the land. In 1878 the wish arose amongst the admirers of Triphon to rebuild the Pechenga Monastery. On the 15th December, 1883, the 300th anniversary of the death of Triphon was solemnly celebrated throughout the entire government of Archangel; and since then the desire to build up the Pechenga Monastery has become more strongly

[1] "In the Arctic Ocean: Voyage to the North" (1895), E. Loov.

developed. The Holy Synod, after investigating the matter in 1886, charged the Solovetzky Monastery with the restoration of the Pechenga Monastery.

A small band of Solovetzky monks, numbering eleven men, obediently following this call, set out with the blessings and prayers of their own monastery; and supplied with all ecclesiastical necessaries, books, tools, and means of living, they arrived on the 16th July 1886, at their destination in the "desolate wilderness," as the ancient historian terms Lapland.

It was decided to build the monastery on the spot where the Holy Triphon died, and where the hermitage of the Assumption of the Holy Virgin once stood. The Solovetzky brotherhood on their arrival here, found the ancient church of the Purification of the Holy Virgin, a clerical house of the same date, and two Laplanders' huts. In October of the same year they laid the foundation for a building containing ten cells. In July 1887 all the brotherhood were already installed in their new buildings. The dilapidated wooden church, built in 1707 and containing only one altar and no stove or ceiling, was repaired as far as possible before other buildings were started. That church with difficulty could hold forty people.

And yet only ten years after the restoration of the Monastery of St. Triphon was begun—on the 16th July 1896, the wilderness had become a flourishing spot.

A new large and spacious church has been built of timber, with three altars, decorated inside with much care, and richly provided with all church utensils and a sacristy. A parish-church school, supported by monastery funds, has been opened, where twenty boys are taught; workshops are established for carpentering, carving, gilding, for locksmiths, fishing-net makers, and joiners—just like in a monastery of old standing; nineteen dwelling-houses and sixteen other buildings have been erected; a large farmyard is established; the land has been cleared for meadows yielding 5000 poods of hay, gardening has been introduced; a good road to the sea has been

made — 25 versts long; swamps have been dried and the land levelled.

In addition to this work and their devotional exercises, the monks of the re-established Pechenga Monastery have also to continue the missionary work of the Holy Triphon in our Northern Province. It is to be the bulwark of the Orthodox Faith against any possible invasion of the teachings of another faith into Russian territory from the direction of the Norwegian frontier.

The Monastery of St. Triphon already exercises a beneficent influence upon the dwellers in the vast desolate country of the far North—the nomadic Laplanders; it will be to them the same shining torch as it was during the lifetime of its founder, in whose sanctity they firmly believe. Even now they, like the inhabitants of the colonies and the citizens of the town of Kola, frequently and fervently visit the monastery; but more especially on those days when the memory of St. Triphon is celebrated, and when about 500 congregate and stay in the monastery some three days. Undeniably it has a beneficial influence upon these inhabitants of the tundras, these children of nature, impressionable as they naturally are, when on entering the church they see its beautiful decorations, the lighted lamps, the assembly of priests in their brilliant vestments, and hear the harmonious singing and clear reading. All this engenders in their breasts an unspeakable joy, and leaves pleasant memories in their minds. The hearty welcome tendered to the pious Laplanders, the comfortable accommodation and abundant meals provided for them during these three days, the distribution of pictures representing the monastery, of small crosses and holy images and pamphlets, all tend towards attracting them to the monastery. They take a great delight in telling their families and neighbours all they have seen. But what is better than all—they carry away with them a firm and deep belief; and the knowledge that they are the children of the One great and holy orthodox Church; and that they also are sons of the great and powerful Empire of Russia.

On the spot of the ancient monastery, close to the tomb of the 116 martyrs, the foundation is laid of the new church; and the colonists who had settled there are being transferred at the expense of the monastery to another place. It is also proposed, and already decreed by the Holy Synod, to erect a monastery here sixteen versts nearer the sea; and where the monastery now stands will be the hermitage. In this manner a fresh field opens for the labours of the monks, and for the benevolence of the pious.

The number of constant inhabitants of the monastery now reaches 120.

Evidently now and henceforth, as formerly, and at all times, beginning from the ages when the orthodox faith was first planted in Holy Russia, the wilderness attracts with irresistible force pious souls seeking salvation and saint-like life. And this is only too natural; to man, overwhelmed by life's afflictions and reverses, ensnared in the meshes of worldly temptations and allurements, buffeted by sinful thoughts, desires, and passions; to the sinner, weak, and sorrowful in mind, longing to be at peace with his own conscience and to find mercy with the heavenly Judge, to him the wilderness is a peaceful welcome harbour, where according to the words of the Psalmist, men go *in the hope of God to escape from faint-heartedness and tempest* (Psalm liv. 8, 9).

That is the reason why monasteries in lonely situations have been famous more than others for the severity of their monastic life, for the harmonious beauty of their church service and ritual, and for their frequent and lengthy prayers for the living and masses for the dead.

At the end of our narrative, let us conclude with the words of the acathistus to the Holy Triphon: "Be joyful, child of honoured parents, dearly beloved of God; be joyful that called from above you wandered to the shores of the Ocean; be joyful that there you carried the light of God's love to the Lapland people, dispersing the cold and darkness

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TWO CHURCHES ON SITE OF FIRST MONASTERY.

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of the soul. Your monastery, even though according to your mind it was destroyed, became more famous through the sufferings of the brethren, and again arose. And even if once more it disappeared, it has now again revived with better strength. Be joyful Triphon, enlightener of the Northern Lands, Worker of Miracles of Pechenga!"

The memory of the Holy Triphon is celebrated on the 15th December and 1st February.

APPENDIX

APPENDIX I

BIRDS OF RUSSIAN LAPLAND AND KANIN PENINSULA.	Henö Islands (Pearson).	Pechenga District (Pearson).	Ribatchi Peninsula (Pearson).	Litza District (Pearson).	Kola to Raz-Navolok (Pearson).	Kandalax to Kola (Witherby).	Lutni (Pearson).	General List (Pearson).	General List, Breeding (Pearson).	General List (H. Goebel, &c.).	General List, Breeding (H. Goebel, &c.).	Kanin Peninsula (Pearson).	Remarks.
1. Missel-Thrush (*Turdus viscivorus*), Linn. .	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in summer, Imandra district.
2. Song-Thrush (*Turdus musicus*), Linn. . .	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in summer in six districts.
3. Redwing (*Turdus iliacus*), Linn. . . .	–	×	×	×	×	×	×	×	×	×	×	×	...
4. Fieldfare (*Turdus pilaris*), Linn. . . .	–	×	–	×	×	×	×	×	×	×	×	–	...
5. Ring-Ouzel (*Turdus torquatus*), Linn. . .	–	–	–	–	–	–	×	×	–	×	×	–	...
6. Black-bellied Dipper (*Cinclus melanogaster*), C. L. Brehm	–	–	–	–	×	×	×	×	–	×	×	–	...
7. Common Wheatear (*Saxicola œnanthe*), Linn.	×	×	×	–	×	×	×	×	×	×	×	–	...
8. Whin-Chat (*Pratincola rubetra*), Linn. .	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
9. Redstart (*Ruticilla phœnicurus*), Linn . .	–	×	–	×	×	×	–	×	×	×	×	–	...
10. Red-spotted Bluethroat (*Cyanecula suecica*), Linn.	×	×	×	×	×	×	×	×	×	×	×	×	...
11. Garden-Warbler (*Sylvia salicaria*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in N.W. district.
12. Chiffchaff (*Phylloscopus collybita*), Vieill .	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred on W. Murman coast.
13. Willow-Wren (*Phylloscopus trochilus*), Linn.	×	×	–	×	×	×	×	×	×	×	×	×	...
14. Eversmann's Warbler (*Phylloscopus borealis*), Bechst.	–	–	–	–	×	–	–	×	–	×	×	–	...
	1	2	3	4	5	6	7	8	9	10	11	12	

	1	2	3	4	5	6	7	8	9	10	11	12	
15. Sedge Warbler (*Acrocephalus phragmitis*), Beckstein	–	–	–	–	×	–	×	×	–	×	–	–	...
16. Hedge Sparrow (*Accentor modularis*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
17. Great Titmouse (*Parus major*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in autumn in N.W. district.
18. Coal Titmouse (*Parus ater*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in autumn in two districts and W. Murman coast in spring.
19. Northern Marsh-Titmouse (*Parus borealis*), De Selys	–	×	–	–	–	–	–	×	–	×	×	–	...
20. Lapp Titmouse (*Parus cinctus*), Bodd.	–	–	–	–	×	×	–	×	×	×	×	–	...
21. White Wagtail (*Motacilla alba*), Linn.	×	×	×	×	×	×	×	×	×	×	×	×	...
22. Blue-headed Wagtail (*Motacilla flava*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Recorded in four districts.
23. Grey-headed Wagtail (*Motacilla viridis*), Gmel.	–	×	–	–	×	×	–	×	×	×	×	×	...
24. Meadow-Pipit (*Anthus pratensis*), Linn.	×	×	×	×	×	×	×	×	×	×	×	–	...
25.(?) Petchora Pipit (*Anthus gustavi*), Swinh.	–	×	–	–	–	–	–	×	–	–	–	–	See p. 19.
26. Red-throated Pipit (*Anthus cervinus*), Pall.	×	×	×	×	×	–	×	×	×	×	×	×	...
27. Tree-Pipit (*Anthus trivialis*), Linn.	–	–	–	–	–	×	–	–	–	×	×	–	...
28. Rock-Pipit (*Anthus obscurus*), Lath.	×	–	–	–	–	–	–	×	×	×	×	–	...
29. Great Grey Shrike (*Lanius excubitor*), Linn.	–	–	–	–	×	×	–	×	–	×	×	–	...
30. Waxwing (*Ampelis garrulus*), Linn.	–	–	–	–	×	–	–	×	–	×	×	–	Said to have bred in Imandra and Tuloma districts.
31. Spotted Flycatcher (*Muscicapa grisola*), Linn.	–	–	–	–	×	–	–	×	×	×	×	–	...
32. Pied Flycatcher (*Muscicapa atricapilla*), Linn.	–	–	–	–	–	×	–	–	–	×	×	–	...
33. Swallow (*Hirundo rustica*), Linn.	–	–	–	–	×	–	–	×	–	×	×	–	...
34. House-Martin (*Chelidon urbica*), Linn.	–	–	–	–	×	×	×?	×	×	×	×	–	...
35. Sand-Martin (*Cotile riparia*), Linn.	–	×	–	–	×	×	–	×	×	×	×	–	...
36. Goldfinch (*Carduelis elegans*), Steph.	–	–	–	–	–	–	–	–	–	×		–	Recorded in Kola district.

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BIRDS OF RUSSIAN LAPLAND AND KANIN PENINSULA.	Henö Islands (Pearson).	Pechenga District (Pearson).	Ribatchi Peninsula (Pearson).	Litza District (Pearson).	Kola to Raz-Navolok (Pearson).	Kandalax to Kola (Witherby).	Lutni (Pearson).	General List (Pearson).	General List, Breeding (Pearson).	General List (H. Goebel, &c.).	General List, Breeding (H. Goebel, &c.).	Kanin Peninsula (Pearson).	Remarks.
37. Siskin (*Chrysomitris spinus*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	...
38. House-Sparrow (*Passer domesticus*), Linn.	–	×	–	–	–	–	–	×	×	×	×	–	...
39. Tree-Sparrow (*Passer montanus*), Linn.	–	–	–	–	–	–	–	–	–	×	×	×	...
40. Chaffinch (*Fringilla cœlebs*), Linn.	–	–	–	–	–	×	–	–	–	×	–	–	...
41. Brambling (*Fringilla montifringilla*), Linn.	–	×	–	×	×	×	×	×	×	×	×	–	...
42. { Mealy Redpoll (*Linota linaria*), Linn. } Coues's Redpoll (*Linota exilipes*), Coues.	–	×	–	×	×	×	×	×	×	×	×	×	...
43. Northern Bullfinch (*Pyrrhula major*), C. L. Brehm.	–	–	–	–	–	–	–	–	–	×	–	–	...
44. Pine-Grosbeak (*Pinicola enucleator*), Linn.	–	–	–	–	×	×	–	×	–	×	×	–	...
45. Parrot Crossbill (*Loxia pityopsittacus*), Bechst.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in S.W. district.
46. Common Crossbill (*Loxia curvirostra*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in Imandra district.
47. Yellow Bunting (*Emberiza citrinella*), Linn.	–	–	–	–	×	×	–	×	–	×	–	–	...
48. Ortolan Bunting (*Emberiza hortulana*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
49. Reed-Bunting (*Emberiza schœniclus*), Linn.	–	×	–	×	×	×	–	×	×	×	×	–	...
50. Rustic Bunting (*Emberiza rustica*), Pall.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
51. Lapland Bunting (*Plectrophanes lapponicus*), Linn.	×	×	×	–	×	–	×	×	×	×	×	×	...
52. Snow-Bunting (*Plectrophanes nivalis*), Linn.	×	×	×	–	×	–	×	×	–	×	×	–	...
53. Sky-Lark (*Alauda arvensis*), Linn.	–	–	–	–	×	–	–	×	–	×	×	–	...
54. Shore-Lark (*Otocorys alpestris*), Linn.	×	×	×	×	×	–	×	×	×	×	×	×	...
55. Common Starling (*Sturnus vulgaris*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in N.W. district.
	1	2	3	4	5	6	7	8	9	10	11	12	

	1	2	3	4	5	6	7	8	9	10	11	12	
56. Siberian Jay (*Perisoreus infaustus*), Linn.	–	–	–	×	×	×	–	×	–	×	×	–	...
57. Common Jay (*Garrulus glandarius*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in N.W. district.
58. Magpie (*Pica rustica*), Scop.	–	–	–	–	–	×	–	–	–	×	×	–	...
59. Hooded Crow (*Corvus cornix*), Linn.	–	×	–	×	×	×	–	×	×	×	×	–	...
60. Rook (*Corvus frugilegus*), Linn.	–	–	–	–	×	–	–	×	–	×	–	–	...
61. Raven (*Corvus corax*), Linn.	×	×	×	–	×	–	×	×	×	×	×	×	...
62. Swift (*Cypselus apus*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded from six districts.
63. Great Black Woodpecker (*Dryocopus martius*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded from six districts.
64. Great Spotted Woodpecker (*Picus major*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded from two districts.
65. Lesser Spotted Woodpecker (*Picus minor*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
66. Three-toed Woodpecker (*Picoides tridactylus*), Linn.	–	×	–	–	×	×	–	×	×	×	×	–	...
67. Cuckoo (*Cuculus canorus*), Linn.	–	×	–	×	×	×	–	×	–	×	×	–	...
68. Short-eared Owl (*Asio accipitrinus*), Pall.	–	–	–	–	×	–	–	×	–	×	×	–	...
69. Ural Owl (*Syrnium uralense*), Pall.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. and Imandra districts.
70. Lapp Owl (*Syrnium lapponicum*), Sparrm.	–	–	–	–	–	–	–	–	–	×	×	–	Do. do.
71. Snowy Owl (*Nyctea scandiaca*), Linn.	×	–	–	–	–	–	–	×	–	×	×	–	Said to have bred in W. Murman coast.
72. Hawk Owl (*Surnia ulula*), Linn.	–	×	–	–	×	×	–	×	×	×	×	–	...
73. Tengmalm's Owl (*Nyctala tengmalmi*), Gmel.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in Tuloma district.
74. Eagle Owl (*Bubo ignavus*), Forst.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. and Imandra districts.
75. Hen-Harrier (*Circus cyaneus*), Linn.	–	–	–	–	×	–	–	×	–	×	–	–	...
76. Common Buzzard (*Buteo vulgaris*), Leach.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in Tuloma district.
77. Rough-legged Buzzard (*Archibuteo lagopus*), Gmel.	–	×	×	×	×	×	×	×	×	×	×	×	...
78. Golden Eagle (*Aquila chrysaetus*), Linn.	–	–	–	–	×	–	–	×	–	×	×	–	...
79. White-tailed Eagle (*Haliaetus albicilla*), Pall	–	×?	–	×	×	×	–	×	–	×	×	–	...

BIRDS OF RUSSIAN LAPLAND AND KANIN PENINSULA.	Henö Islands (Pearson).	Pechenga District (Pearson).	Ribatchi Peninsula (Pearson).	Litza District (Pearson).	Kola to Raz-Navolok (Pearson).	Kandalax to Kola (Witherby).	Lutni (Pearson).	General List (Pearson).	General List, Breeding (Pearson).	General List (H. Goebel, &c.).	General List, Breeding (H. Goebel, &c.).	Kanin Peninsula (Pearson).	Remarks.
80. Goshawk (*Astur palumbarius*), Linn. . .	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in four districts. Pleske records this bird from Imandra, Kola, and Kandalax.
81. Sparrow-Hawk (*Accipiter nisus*), Linn. .	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district. Recorded by Pleske from Kandalax.
82. Gyr-Falcon (*Falco gyrfalco*), Linn. . . .	–	–	–	–	×	–	×	×	×	×	×	–	...
83. Peregrine Falcon (*Falco peregrinus*), Tunstall	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district and W. Murman coast.
84. Merlin (*Falcon æsalon*), Tunstall . . .	–	–	–	–	×	×	×	×	×	×	×	–	...
85. Common Kestrel (*Falco tinnunculus*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
86. Osprey (*Pandion haliaetus*), Linn. . . .	–	×	–	–	×	–	–	×	–	×	×	–	...
87. Cormorant (*Phalacrocorax carbo*), Linn. .	×	×	×	×	×	×	×	×	–	×	×	–	...
88. Shag (*Phalacrocorax graculus*) Linn. . .	×	–	–	–	–	–	×	×	–	×	×	–	...
89. Gannet (*Sula bassana*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded on N.W. coast.
90. Grey-lag Goose (*Anser cinereus*), Meyer .	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
91. { Bean-Goose (*Anser segetum*), Gmel. . .	–	–	–	× ?	×	–	×	×	×	×	×	× ?	...
{ „ (*Anser arvensis*), C. L. Brehm	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
92. Pink-footed Goose (*Anser brachyrhynchus*), Baill.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in Tuloma district in summer.
	1	2	3	4	5	6	7	8	9	10	11	12	

	1	2	3	4	5	6	7	8	9	10	11	12	
93. White-fronted Goose (*Anser albifrons*), Scop.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in Tuloma district and E. Murman coast in spring.
94. Lesser White-fronted Goose (*Anser erythropus*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	...
95. Brent Goose (*Bernicla brenta*), Pall.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in five stations in spring.
96. Bernacle Goose (*Bernicla leucopsis*), Bechst.	–	–	–	–	–	–	–	–	–	×	–	–	Two records in autumn.
97. Whooper Swan (*Cygnus musicus*), Bechst.	–	×	–	–	×	–	–	×	×	×	×	–	...
98. Bewick's Swan (*Cygnus bewicki*), Yarr.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded on W.Murman coast in spring.
99. Common Sheldrake (*Tadorna cornuta*), Gmel.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in N.W. district in spring and autumn.
100. Mallard (*Anas boscas*), Linn.	–	–	–	–	–	–	–	–	–	×	×	×	...
101. Teal (*Nettion crecca*), Linn.	–	–	–	–	×	×	×?	×	×	×	×	×	...
102. Pintail (*Dafila acuta*), Linn.	–	–	–	–	×	–	–	×	–	×	×	×	...
103. Wigeon (*Mareca penelope*), Linn.	×	×	–	–	×	–	–	×	×	×	×	–	...
104. Scaup (*Fuligula marila*), Linn.	–	–	–	–	–	–	×	×	–	×	×	×	...
105. Tufted Duck (*Fuligula cristata*), Leach.	–	–	–	–	×	–	–	×	×	×	×	–	...
106. Goldeneye (*Clangula glaucion*), Linn.	–	–	–	–	×	×	–	×	×	×	×	–	...
107. Harlequin Duck (*Cosmonetta histrionica*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded on coast in autumn and winter.
108. Long-tailed Duck (*Harelda glacialis*), Linn.	×	×	×	×	×	×	×	×	×	×	×	×	...
109. Eider Duck (*Somateria mollissima*), Linn.	×	×	×	–	–	×	×	×	×	×	×	×	...
110. King Eider (*Somateria spectabilis*), Linn.	–	–	–	–	–	–	–	–	–	×	–	×	Recorded on coast in winter and spring.
111. Steller's Duck (*Somateria stelleri*), Pall.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in W. Murman and Kola districts.
112. Velvet Scoter (*Œdemia fusca*), Linn.	×	×	–	–	×	×	×	×	×	×	×	–	...
113. Common Scoter (*Œdemia nigra*), Linn.	×	×	–	×	×	×	×	×	×	×	×	–	...
114. Goosander (*Mergus merganser*), Linn.	×	×	–	×	×	–	×	×	×	×	×	–	...
115. Red-breasted Merganser (*Mergus serrator*), Linn.	×	×	–	–	×	×	–	×	×	×	×	–	...

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116. Smew (*Mergus albellus*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. and Tuloma districts.
117. Ptarmigan (*Lagopus mutus*), Leach . .	–	×	–	–	–	–	×	×	–	×	×	–	...
118. Willow-Grouse (*Lagopus albus*), Gmel. .	–	×	×	×	×	×	×	×	×	×	×	×	...
119. Hazel-Grouse (*Bonasa betulina*), Scop. .	–	–	–	–	×	×	–	×	–	×	×	–	...
120. Black Grouse (*Tetrao tetrix*), Linn. . .	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in Kandalax district, recorded in four other districts in winter.
121. Capercaillie (*Tetrao urogallus*), Linn. . .	–	×	–	–	×	×	–	×	×	×	×	–	...
122. Landrail (*Crex pratensis*), Bechst. . . .	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in S.W. district, autumn.
123. Common Crane (*Grus communis*), Bechst.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in three districts, summer.
124. Golden Plover (*Charadrius pluvialis*), Linn.	–	×	×	×	×	×	×	×	×	×	×	×	...
125. Grey Plover (*Squatarola helvetica*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred on W. Murman coast[1]; more information desirable.
126. Ringed Plover (*Ægialitis hiaticula*), Linn.	×	×	×	×	×	×	×	×	×	×	×	×	...
127. Lesser Ringed Plover (*Ægialitis curonica*), Gmel.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in Kandalax district, summer.
128. Dotterel (*Eudromias morinellus*), Linn. .	–	×	×	–	–	–	×	×	×	×	×	–	...
129. Lapwing (*Vanellus vulgaris*), Bechst. .	–	–	–	–	–	–	–	–	–	×	–	–	Recorded on W. Murman coast, spring.
130. Turnstone (*Strepsilas interpres*), Linn. .	×	–	×	–	–	×	×	×	×	×	×	–	...
	1	2	3	4	5	6	7	8	9	10	11	12	

	1	2	3	4	5	6	7	8	9	10	11	12	
131. Oyster-catcher (*Hæmatopus ostralegus*), Linn.	×	×	×	–	×	×	×	×	×	×	×	×	...
132. Red-necked Phalarope (*Phalaropus hyperboreus*), Linn.	×	×	×	–	×	×	×	×	×	×	×	×	...
133. Great Snipe (*Gallinago major*), Gmel.	–	–	–	–	–	–	×?	–	–	–	–	–	...
134. Common Snipe (*Gallinago cœlestis*), Frenzel	–	×	–	–	×	×	×	×	×	×	×	×	...
135. Jack Snipe (*Gallinago gallinula*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in Kola district.
136. Broad-billed Sandpiper (*Limicola platyrhyncha*), Temm.	–	–	–	–	×	×	–	×	–	×	×	–	...
137. Dunlin (*Tringa alpina*), Linn.	×	×	×	–	–	–	×	×	×	×	×	×	...
138. Little Stint (*Tringa minuta*), Leisl.	×	–	–	–	–	–	×	×	×	×	×	–	...
139. Temminck's Stint (*Tringa temmincki*), Leisl.	–	×	×	×	×	×	×	×	×	×	×	×	...
140. Curlew Sandpiper (*Tringa subarquata*), Güldenstädt	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred on W. Murman coast; more information desirable.
141. Purple Sandpiper (*Tringa striata*), Linn.	×	×	×	–	–	–	×	×	–	×	×	–	...
142. Knot (*Tringa canutus*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in spring from two districts; autumn 1, winter 1.
143. Ruff (*Machetes pugnax*), Linn.	×	–	–	–	×	×	–	×	×	×	×	×	...
144. Sanderling (*Calidris arenaria*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in spring on W. Murman coast.
145. Common Sandpiper (*Totanus hypoleucus*), Linn.	–	×	–	–	×	×	–	×	×	×	×	–	...
146. Wood-Sandpiper (*Totanus glareola*), Linn.	–	–	–	–	×	×	×	×	×	×	×	×	...
147. Common Redshank (*Totanus calidris*), Linn.	×	×	×	×	×	×	×	×	×	×	×	–	...
148. Spotted Redshank (*Totanus fuscus*), Linn.	–	–	–	–	×	×	–	×	×	×	×	–	...
149. Greenshank (*Totanus canescens*), Gmel.	–	–	–	–	×	×	–	×	–	×	×	–	...
150. Bar-tailed Godwit (*Limosa lapponica*), Linn.	×	–	–	×	×	×	–	×	×	×	×	–	...
151. Whimbrel (*Numenius phæopus*), Linn.	–	×	×	×	×	×	–	×	×	×	×	–	...
152. Common Curlew (*Numenius arquata*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.

BIRDS OF RUSSIAN LAPLAND AND KANIN PENINSULA.	Henö Islands (Pearson).	Pechenga District (Pearson).	Ribatchi Peninsula (Pearson).	Litza District (Pearson).	Kola to Raz-Navolok (Pearson).	Kandalax to Kola (Witherby).	Lutni (Pearson).	General List (Pearson).	General List, Breeding (Pearson).	General List (H. Goebel, &c.).	General List, Breeding (H. Goebel, &c.).	Kanin Peninsula (Pearson).	Remarks.
153. Arctic Tern (*Sterna macrura*), Naum. .	×	×	×	×	×	×	×	×	×	×	×	–	...
154. Common Tern (*Sterna fluviatilis*), Naum.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred in N.W. district.
155. Sabine's Gull (*Xema sabinii*), Sabine. .	–	–	–	–	–	–	–	–	–	×	–	–	Recorded off the coast in spring.
156. Ivory Gull (*Pagophila eburnea*), Phipps. .	–	–	–	–	–	–	–	–	–	×	–	–	Several specimens shot on coast in winter.
157. Common Gull (*Larus canus*), Linn. . .	×	×	–	×	×	×	×	×	×	×	×	--	...
158. Herring-Gull (*Larus argentatus*), Gmel. .	×	×	–	–	×	×	×	×	×	×	×	–	...
159. Siberian Herring-Gull (*Larus affinis*), Reinh.	–	–	–	–	–	–	–	–	–	×	–	× ?	Recorded on coast in spring and summer.
160. Lesser Black-backed Gull (*Larus fuscus*), Linn.	×	×	--	–	×	×	–	×	×	×	×	–	...
161. Greater Black-backed Gull (*Larus marinus*), Linn.	×	–	×	×	×	×	×	×	×	×	×	–	...
162. Glaucous Gull (*Larus glaucus*), Faber. .	–	–	–	–	–	×	×	×	–	×	×	×	...
163. Iceland Gull (*Larus leucopterus*), Faber.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred on W. Murman coast ?
164. Kittiwake (*Rissa tridactyla*), Linn. . .	–	×	×	–	–	×	–	×	×	×	×	×	...
165. Great Skua (*Stercorarius catarrhactes*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded off N.W. district in summer (probably a melanic form of next species).
166. Pomatorhine Skua (*Stercorarius pomatorhinus*), Temm.	–	–	–	–	–	–	–	×	–	×	×	–	Said to have bred on W. Murman coast.
167. Richardson's Skua (*Stercorarius crepidatus*), Banks.	×	×	×	×	–	–	×	×	×	×	×	–	...
	1	2	3	4	5	6	7	8	9	10	11	12	

	1	2	3	4	5	6	7	8	9	10	11	12	
168. Buffon's Skua (*Stercorarius parasiticus*), Linn.	–	×	×	–	×	–	×	×	×	×	×	×	...
169. Fulmar (*Fulmarus glacialis*), Linn.	×	–	–	–	–	–	–	×	–	×	–	–	...
170. Razorbill (*Alca torda*), Linn.	×	–	×	–	–	–	–	×	–	×	×	–	...
171. Common Guillemot (*Lomvia troile*), Linn.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred on E. Murman coast.
172. Brünnich's Guillemot (*Lomvia bruennichi*), Sabine.	–	–	–	–	–	–	–	–	–	×	×	–	Said to have bred on E. Murman coast.
173. Black Guillemot (*Uria grylle*), Linn.	×	×	×	–	–	×	×	×	×	×	×	–	...
174. Spitsbergen Guillemot (*Uria mandti*), Licht.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded on coast in spring, autumn, and winter.
175. Little Auk (*Mergulus alle*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded on coast in spring, autumn, and winter.
176. Puffin (*Fratercula arctica*), Linn.	×	–	–	–	–	–	–	×	×	×	×	–	...
177. Great Northern Diver (*Colymbus glacialis*), Linn.	–	–	–	–	–	×?	–	–	–	×	–	–	...
178. White-billed Diver (*Colymbus adamsi*), G. R. Gray	–	×	–	–	–	–	–	×	–	×	–	–	...
179. Black-throated Diver (*Colymbus arcticus*), Linn.	–	×	–	–	×	×	×	×	×	×	×	–	...
180. Red-throated Diver (*Colymbus septentrionalis*), Linn.	×	×	–	–	×	×	×	×	×	×	×	×	...
181. Red-necked Grebe (*Podiceps griseigena*), Bodd.	–	–	–	–	–	–	–	–	–	×	–	–	An indefinite record in N.W. district.
182. Sclavonian Grebe (*Podiceps auritus*), Linn.	–	–	–	–	–	–	–	–	–	×	–	–	Recorded in autumn on W. Murman coast.
	42	63	33	33	83	68	57	107	71	182	136	35	

APPENDIX II

FOOD AND EQUIPMENT

Many friends having complained that no information is to be found in "Beyond Petsora Eastward" on the subject of stores and other necessaries, I propose to give a list of the things taken with us in 1901.

Individual tastes vary so much that the list of food will only be a guide as to quantities generally. Many of the items were doubtless unnecessary luxuries; but as much of our time was spent on the steamer we were not obliged to limit the weight of stores as we should have been for an overland journey; and I am sure that a good variety of food conduces to health.

LIST OF FOOD, ETC., USED BY TWO PERSONS IN SEVEN WEEKS.

3 Salmon (bought from the natives at Lutni).
5 Plum puddings.
1½ Boxes of potatoes (from the Canary Islands).[1]
½ Bag of onions.
2 Irish hams = 23½ lbs.
Bacon 15½ lbs.
21 Glasses of mutton cutlets, roast fowl, beef, &c.[2]
5 Tins camp pie.
1 Tin pressed beef.
12 ,, Oxford sausages.
9 ,, lobster (Lazenby's flat tins with blue label).[3]
5 ,, sardines.
11 ,, potted beef, game, &c. (Moir's).[4]
34 ,, (1 lb.) soups, thick ox-tail, mock turtle, &c.[5]
16 ,, (1 lb.) vegetable soups, various.[6]

[1] Potatoes must be thoroughly ripe to travel well through the summer.
[2] The most satisfactory form of preserved meat I have yet met with. On an expedition where all food is tinned, meat is the most difficult problem.
[3] Good tinned lobster is a very sustaining food.
[4] Useful for lunch on biscuits.
[5] Nothing equals a basin of good soup after a long tramp over bogs and tundra. A 1 lb. tin will make enough for three persons. Add water in proportion. All these soups should be boiled about five minutes.
[6] Improved by two teaspoonsful of taureau.

8 Large bottles taureau (a preparation like bovril).
1 Small do do.
1 Tin petit pois.
5 „ dried mixed vegetables.[7]
2 Boxes pulled figs.
1 Box muscatel raisins.[8]
4 Tins Bartlett pears.
5 „ peaches.
2 Bottles French plums.
4 Tins (1 lb.) marmalade.
3 „ „ apricot jam, &c.
3 Bottles damsons.
2 Lbs. crystallised apricots and greengages.[9]
2 Bottles pickled onions.
1 Jar preserved ginger.
8 Lbs. Mexican chocolate.
2 Tins Van Houten's cocoa.
7 Lbs. mocha coffee.
4 Lbs. tea.
14 Bottles sterilised milk.
1 Tin cream.
6 Tins (½ lb.) Devonshire butter.
2 Dutch cheeses.
5 Bags (7 lbs.) Hill's whole meal.[10]
1 Large tin captain biscuits.[11]
5 Small „ arrowroot „
2 „ „ fruit „
6 „ „ cabin „
3 „ „ ginger nut „
1 „ „ oatmeal „
1 „ „ protene „
7 Lbs. brown moist sugar.
7 „ loaf sugar.
1 Jar French mustard.
1 „ table salt.
2 Boxes candles.
1 Bottle Harvey Sauce.
Vinolia soap.

The above, except the first four items, were procured from the Army and Navy Stores, London, and were all excellent in quality. I have had my food supplies from this association for every expedition since 1891, and have never had cause to complain of anything; a fact I do not hesitate to record, although it may savour of an advertisement.

LIQUIDS.

Each man to his taste, little alcohol is really required. Cherry Brandy appreciated by most visitors.

[7] Most useful. Add ¼ tin to No. 5 occasionally.
[8] Good for lunch.
[9] For visitors.
[10] Made into delicious brown bread at Vardö, &c. Even with the greatest care it began to turn mouldy after seven or eight days; and when this penetrates to the interior of the loaves biscuits are preferable. Unfortunately our cook could not bake bread on board as he had no suitable oven.
[11] Do not be persuaded to take the hardest baked kinds of biscuits. There is not always time to soak them, and I have known a man damage four teeth during one voyage on these "rocks."

CLOTHES.

Two suits of strong cloth, suitable for winter wear in England, lined with flannel. Colour, a light yellow buff, with little pattern. To successfully watch birds to their nests, it is necessary that *all* parts of the costume should harmonise with the prevailing tint of the tundra, and I have found the above colour makes the wearer almost invisible.

Strong cloth macintosh with detachable cape, of the pattern used for driving ; the cape alone is sufficient protection when walking in rain, and can be carried on top of the knapsack.

Greatcoat or thick cover-coat.

Soft hat, with wide brim, which shades the eyes from the sun and keeps the rain out of the neck.

Caps of same cloth as suits.

Flannel shirts (not white).

Underwear of same weight as used during winter in England.

Neckties, pocket-handkerchiefs.

Stockings and socks.

Night suits of flannel.

Strong leather gloves ; not stitched down the back, as mosquitoes bite freely through these stitches.

Woollen gloves for wet weather.

Extra pair of braces.

Small dressing case, "Huswife" well stocked with large-sized needles thread &c.

Sponge and bag. Towels.

Two pairs of shooting boots. The only nails which will stand rough work are those used for fishing-boots ; they are screwed through the lower sole and riveted over a thin copper washer before the sole is sewn on to the boot. Extra boot laces.

Pair of indiarubber deck-boots.

Pair of strong shoes.

Pair leather slippers.

Leggings made of macintosh twill (same as used for long fishing-boots), bound at bottom with leather, and secured under foot with strong leather strap. These should be like a pair of wading-boots cut through on the line of the ankle bone. The straps at top are best attached to brass studs on a leather waist-

belt. Wading-boots are liable to chafe the heels after several days' walking over heavy country, even when secured round the ankles with straps. Leggings, as described, are not waterproof when crossing a stream two or three feet deep! but when they are well strapped down over the boots, it is astonishing how marshes can be crossed without the wearer getting wet. One can always kneel in safety to examine flowers, nests, &c. With the macintosh cape they form a complete protection from the heaviest rain, and are far easier to walk in than a long macintosh. Lastly, their colour is good.

Screw boot stretchers most necessary, and much better than lasts. Boots are never dry in the north, and are easier to the feet when wet; still they must be stretched into shape, or they wrinkle, &c., until they become unbearable. The following receipt for making boots waterproof and soft is good, and is used by the Norwegian fishermen. Melt the composition and warm the boots before applying:—2 parts Stockholm tar; 2 parts cod liver oil; 1 part mutton fat.

Mosquito nets, as illustrated by Seebohm in "Siberia in Europe," p. 225. These are indispensable in many parts of the north; still I ought to say I have taken them four times, and never worn them until 1903. On the coast mosquitoes are only seriously troublesome in hot weather during July and August; and the traveller rarely finds them at their worst in this locality, as there is so often a cool wind from the sea to check their ardour. Oil of lavender gives temporary relief from mosquitoes, but kreolin is the best thing I have tried. It is a preparation from tar, and as nine parts of water must be mixed with one of kreolin before using it, only a small bottle of kreolin is required. It also has the great advantage of allaying the irritation caused by mosquito bites.

This list does not include clothes, &c., for the voyage out and home.

CAMPING.

Tent or Tents.—Having our steamer as a base, and not wishing to travel far inland, the weight of the tent was not a matter of serious consideration. My last pattern is one 9 ft. long × 7 ft. high in centre × 13 ft. outside and 8 ft. wide inside, supported by a ridge pole resting on upright poles at either end. The covering is of strong white duck-cloth lined with blue serge, the latter being added both for warmth and to produce darkness. In the continuous day of the northern summer it is a great comfort to be able to shut out most of the light when wanting to sleep. I have noticed also it has a marked effect on the

mosquitoes; these insects, never having experienced darkness, became quiet directly the tent was shut up. As may be seen in Plate 34, the outer covering of the left-hand tent (that described above) is continued to the ground, forming a triangular space on each side, most useful for stores, &c.; it also takes the wet further from the interior. A strip of Willesden canvas, one foot wide, is sewn round the bottom edge of tent, which keeps out the wind when weighted down. The tent was made by Edgington & Co.

Beds.—Sleeping on the ground is not comfortable, and a mattress is rather bulky to carry. In 1894 I procured a bed and set of boxes, described by W. G. Lock in his "Guide to Iceland," pp. 23–26, from Bowring, Arundel & Co., Fenchurch Street; and have found them a most comfortable and excellent arrangement. The boxes being lined with zinc can be relied on to keep things dry; they form seats and tables during the day, and as cases of some kind must be taken for stores, all that is really carried for the bed is a piece of canvas 6 ft. 6 in. × 3 ft. and two light ash poles. Two men will put up both their beds in five minutes, after a little practice. Two blankets, or blanket and sleeping bag, will be required. The latter should not be of skins for summer use. An air-pillow useful.

A macintosh sheet large enough to cover at least half the tent must be included, as all ground is full of moisture during June. If no "Iceland" beds be taken, the sheet should cover the whole of the space. (*N.B.*—Roll it up each morning before you put your boots on, or its life will be short. A good sheet carefully used will last three seasons.)

Two indiarubber bowls. (A. and N. Stores' pattern, good).

Galvanised-iron bucket. (Bought in Tromsö).

Small fisherman's stove and stove-pipe. (do.) This is a great comfort; and a cwt. of coal will last a week with care. If a stove be taken, two kettles (one for coffee) will be required.

Indiarubber boat, or some light form of boat, to hold one, which two men can carry comfortably for three or four miles over rough ground. If the traveller is fortunate enough to meet with lakes having islands, he is almost certain to find eggs on the latter, especially if no ordinary boat is available; and the water is generally too cold for swimming. My boat was made by Macintosh & Co.

Medicine Chest.—The contents of this must depend largely on the medical knowledge of the person about to use them. I have none, and therefore got my doctor to draw up a list, with instructions. Very few of the remedies have ever been used, as there has been no serious accident or illness among

passengers and crew in six years. Elliman's embrocation and sticking-plaster were the only things required in 1901.

Knapsack with four wooden boxes for carrying eggs.

A set of nested wooden boxes (made by Cooper, Dennison & Walkden, 7 St. Bride Street, E.C.) occupy little space on the outward journey, and are the best I know for packing eggs in. The outside box measures $14\frac{1}{2}$ in. × $11\frac{1}{2}$ in. × $9\frac{1}{2}$ in., and contains fourteen others.

Blotting paper of best quality to place eggs on when drying. (*N.B.*—Eggs should then have the light excluded from them, or they fade rapidly in colour).

Cotton wool and cap paper for packing. Put a sheet of cotton wool on the bottom of the box, allowing its edges to come up the sides a little; wrap each egg up in a square of paper large enough to twist up at the ends; place the eggs close together so that they will not shake, with cotton wool between each layer. When the boxes are full, pack them in a wooden case securely, and the eggs will then travel home safely with ordinary care.

Egg-blowing apparatus.—Drills, blow-pipes (glass ones for small eggs), Scissors, bent and straight for cutting young birds out of eggs. Hooks, in handles, for holding the bird when cutting; also two or three forceps of different sizes for the same purpose.

Two or three sizes of round paper labels, well gummed, to stick on incubated eggs before removing the young bird. By using these an egg can often be emptied safely which would be otherwise hopeless. For blowing large eggs such as those of Geese, Swans, large Ducks, Guillemots, &c., procure an enema of good quality, remove the bone outlet, and insert in its place a large brass blow-pipe. One person holds the egg in the left hand, and the blow-pipe, where it is joined to the rubber tube, in the right; while the second man works the enema. The blow-pipe should be held lightly between the thumb and finger, so that any undue pressure may force the pipe out of the egg, not burst the latter. To work the apparatus alone, a clamp to hold the blow-pipe is required, which can be fixed on the edge of a table or some convenient board. This contrivance was first designed by Mr. E. Bidwell, and has saved me many a weary hour of strained cheek-muscles; it is too powerful for the smaller eggs.

Two earthenware (or enamelled iron) jars, about 9 in. × 6 in., with lids secured by screw clamps, for young in down, &c. These should be filled with methylated spirits, and carried in a strong wood case made to fit them.

Skinning tools. Arsenical soap or other preservative. Museum labels.

Tools &c.—Saw, hatchet, large hammer (for tent pegs), small hammer;

chisels and gauges, bradawls and gimlets, turnscrew, files, turkey stone for skinning tools, &c., screw wrench, wire plyers, nails (assorted 3 in.–1 in.), screws (assorted), screw hooks (invaluable in cabin for hanging clothes, &c., on), copper wire, thin and thick. Small but strong spade for cutting trenches round tents, &c.; mine is 30 in. long, blade 7 in. × 5 in., the steel socket reaching nearly to the handle.

Guns.—Cartridges Nos. BB, 5, 8, and dust, in brass cases. Insist on the paper over wads being of different colours, so that the sizes can be at once recognised. Gun-cleaner and mops, oil, vaseline, gun-cloths.

Pair of field-glasses of 8 or 12 power.

Ball of rope same strength as tent ropes; one of thick, and one of thin string.

Cooking apparatus.—Two "Rechaud Lang" travelling spirit-stoves, larger size, price 2s. 6d. each, including saucepan. These are the best cooking stoves I know of, and I have used them repeatedly. During our stay in Iceland in 1894, which lasted six weeks, the whole of the food for two persons was cooked on them, using two gallons of methylated spirit. I have six oblong cases of pewter metal with brass screwed stoppers, each holding half a gallon (one is sometimes devoted to whisky), which are made to just fill the bottom of one of the Iceland boxes named above. Do not use any stove requiring paraffin; if it escapes among the food everything it touches is spoilt; spirit evaporates and leaves scarcely a trace. If there is a draught in the tent affecting the stove, cook inside one of the Iceland boxes.

Methylated spirits. Small funnel for filling stoves. Extra stove wicks.

Two square dripping tins 8 in. × 6 in. for frying over stove.

Tea-pot.

Enamelled iron mugs, pint and half-pint made taper to nest.

Enamelled iron plates. Knives, forks, spoons, in proportion to number of members of expedition.

Two tin-openers, corkscrews.

Matches.

Tea-cloths, &c., for "washing up."

Compass, aneroid, thermometers.

Writing paper, pens, ink, pencils, luggage labels, indiarubber bands, money bags, stick-on labels, bottle of fish-glue, diaries, egg note book, bird-skin note book.

Books, charts, and maps relating to the country to be visited.

Saunders' "Manual of British Birds," Dresser's "Manual of Palæarctic

Birds." Paintings of rarer birds possibly to be seen. I have a series copied from Dresser's "Birds of Europe," and have found them invaluable for showing to the natives. Some novels.

Camera in case, and legs. Patterns are endless and constantly improving. If only one is taken I would recommend a half-plate size with the best lens procurable. A stand is indispensable for photographing plants, nests, &c., at close quarters; this should be provided with a tilting-table, so that the camera can be fixed at any angle. Instantaneous films, double films, and isochromatic films in proportion of 8.1.1. Iron box with lock, in which the films fit easily, but without shaking, or the envelopes will cut through during a long journey. If weight of box be objectionable, take tin-cases holding six dozen films each.

Wynne's exposure meter and box of re-fills.

"Holiday" lamp and candles; half a dozen yards of black and red calico are useful at times for making a "dark room."

Extra rubber-tube for shutter.

Extra glasses for camera and lamp. *N.B.—Personally* test the latter with isochromatic films before you leave home, and trust to no dealer.

Wheeler's exposure register.

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Map of
RUSSIAN LAPLAND
Drawn from the Original map made by
Prof. J. A. Friis
Statute Miles
0 10 20 30 40 50
Russian Village
Karelian "
Lappish "
Lappish Chapel
Fishing Station
Boundary line of Finland and Norway
" of Russian Lapland
Limits of Slanovoi or Police Districts
Northern Limit of compact leaf wood
" " " fir wood
Dunder (lap) barren highland or mtn. Jaur jarre (lap) Lake
Niarg (lap) Point. V. Vuon, Vuodna (lap) Fiord. Jok (lap) River
Järvi (fin) Lake. Ozero (rus) Lake. Ostrov (rus) Island. Guba (rus) Bay
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Route
NORWAY
LAPLAND
FINLAND
MURMAN COAST
TERSKI COAST
KANDALAX COAST
KARELIAN COAST
WHITE SEA
Gulf of Kandalax
Arctic Circle
L. Enare or Inara
Kola
Kem
Onega
Solovetsk Monastery